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# CONTENTS



**NavSea's ROI Ship Comes In.**  
In the Management section: SeaPort, the Naval Sea Systems Command's e-procurement system, has cut the time it takes to acquire professional services from 270 days to less than 45. Page 46



03.24.03

## Case Study: Managing the Other 20%

In the Management section: Ingersoll-Rand looks to reap big savings by closely scrutinizing dealings with its smallest suppliers. Page 39

## NEWS

## TECHNOLOGY

**25 Know Thy Customer.** Understanding users' needs and building in flexibility are the keys to successful Web self-service applications.

**30 Hands-On Review: Microsoft's Suite Dreams.** Office 2003 has enough new and improved features to tempt IT managers, says Russell Kay.

**32 Future Watch: Smart Dust.** Tiny wireless sensors could change manufacturing, medicine and even the military.

**34 Security Manager's Journal: Insecure Servers Softer Image Problem.** When server administrators take shortcuts, good security policy and technology can't protect Mathias Thurman's company.

## MANAGEMENT

**42 So You Want to Be a CTO.** What you do in that role depends on who hires you, who you report to and whether you have budget authority.

**44 Q&A: Tap Computers for the "Dog Work."** In the book *Essentials of Supply Chain Management*, Mike Hugos, CIO at Network Services Co., advises readers to leave the critical decisions up to people and the automation to the systems.

**49 Book Review: IT Customers Rule Innovation.** Mark Hall says Computerworld columnist David Moschella's new book should send chills down the spines of IT vendors.

**10 Unisys updates management software for ES7000 servers.**

**12 Microsoft plans to launch "operationally aware" apps to ease system management.**

**14 LAPD seeks a bandwidth boost from WLAN.**

**14 Pentagon investigates system intrusion involving Windows 2000 security flaw.**

**16 i2 aims to simplify supply chain software.**

**16 Fidelity installs SAN management tool, switching from homegrown application.**

## OPINIONS

**10 On the Mark: Mark Hall** learns why Web services aren't moving beyond the firewall, uncovers another victory for Linux and sees 3-D displays in your future.

**22 Patricia Keefe** argues that most ROI analyses are half-baked and explains why yours doesn't have to be.

**22 Piffen For** suggests that P2P technology is more than just cool for kids. It can be a serious tool for IT as well.

**23 Daniel J. Weiszner** points to a recent jury decision that shows the flaws in the Digital Millennium Copyright Act.

**36 Tommy Peterson** says self-service application vendors take the wrong lesson from the history of the ATM.

**50 Peer To Peer: Ten Ways To Increase Your IT Value.** Lesson no. 1: Execution is everything, so don't get embroiled in endless analysis, writes guest columnist Mathias Krieger of Reader's Digest.

**58 Frankly Speaking: Frank Hayes** worries that your staff might be suffering from burnout, then worries again that you might treat all burnout cases the same.

**DEPARTMENTS/RESOURCES**  
At Deadline Briefs ..... 10  
News Briefs ..... 12, 16  
Letters ..... 23  
Company Index ..... 56  
How to Contact CW ..... 56  
Shark Tank ..... 58

## ONLINE

www.computerworld.com

### How to Secure Your Systems Now

**SECURITY:** The war against Iraq will likely trigger an increase in international hacker attacks. There are steps you can take to reduce your exposure. [GlobeLink 37912](#)

### IT Salaries Hold On

**CAREERS:** Meta Group's Marcia Schaefer, in her debut as a Computerworld career columnist, concludes that IT salaries and raises are faring better than those for non-IT jobs. [GlobeLink 37913](#)

### Should You Kill Your Project?

**MISMANAGEMENT:** Do you know when it's time to pull the plug on a project? Columnist Paul Glass tells you what you need to think about when making that decision. [GlobeLink 37914](#)

**Managed C# vs. Unmanaged C++**  
**DEVELOPMENT:** Which is faster? The answer may surprise .Net enthusiasts. [GlobeLink 37915](#)

### Keeping Blended Threats at Bay

**SECURITY:** David Agleysen of eSight examines a new generation of Internet worms and what you can do to defend your networks against them. [GlobeLink 37916](#)

### Review: PowerBook 17

**MACINTOSH:** We put our hands on one of Apple's super-wide PowerBook 17 laptops and find that it's more of a portable desktop than a machine for road warriors — unless you have a large lap. [GlobeLink 37917](#)

### ONLINE

#### DEPARTMENTS

Breaking News	<a href="#">GlobeLink 37918</a>
Newsletter Subscriptions	<a href="#">GlobeLink 37919</a>
Management Columns	<a href="#">GlobeLink 37920</a>
The Online Store	<a href="#">GlobeLink 37921</a>



# CONTENTS



## NavSea's ROI Ship Comes In.

In the Management section: SeaPort, the Naval Sea Systems Command's e-procurement system, has cut the time it takes to acquire professional services from 270 days to less than 45. [Page 46](#)

## NEWS

**8** *Computers are confident about disaster recovery: Technology installed in the aftermath of 9/11 should aid business continuity efforts if the war creates problems.*

**5** *The U.S. is an insight-led cyberagent as the feds activate Operation Liberty Shield.*

**7** *Postwar Iraq may emerge as a big IT market. It has the resources to be a Middle Eastern IT power.*

**6** *CIOs don't expect the war to have a big impact on global IT projects. Travel may be curtailed, but Web and videoconferencing are alternatives.*

**8** *The war may prompt firms to delay outsourcing their work offshore.*

**10** *Unisys updates management software for ES7000 servers.*

**12** *Microsoft plans to launch "operationally aware" apps to ease system management.*

**14** *LAPD seeks a bandwidth boost from WLAN.*

**16** *Pentagon investigates system intrusion involving Windows 2000 security flaw.*

**18** *i2 aims to simplify supply chain software.*

**16** *Fidelity installs SAN management tool, switching from homegrown application.*

## TECHNOLOGY

**25** *Know Thy Customer.* Understanding users' needs and building in flexibility are the keys to successful Web self-service applications.

**30** *Hands-On Review: Microsoft's Suite Dreams.* Office 2003 has enough new and improved features to tempt IT managers, says Russell Kay.

**32** *Future Watch: Smart Dust.* Tiny wireless sensors could change manufacturing, medicine and even the military.

**34** *Security Manager's Journal: Insecure Servers Suffer Impacts Problem.* When server administrators take shortcuts, good security policy and technology can't protect Mathias Thurner's company.

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**42** *So You Want to Be a CTO.* What you do in that role depends on who hires you, who you report to and whether you have budget authority.

**44** *Q&A: Tap Computers for the "Dog Work."* In the book *Essentials of Supply Chain Management*, Mike Hugos, CIO at Network Services Co., advises readers to leave the critical decisions up to people and the automation to the systems.

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**22** *Pimm Fox* suggests that P2P technology is more than just cool for kids. It can be a serious tool for IT as well.

**23** *Daniel J. Weitzner* points to a recent jury decision that shows the flaws in the Digital Millennium Copyright Act.

**36** *Tommy Peterson* says self-service application vendors take the wrong lessons from the history of the ATM.

**50** *Peer to Peers: Ten Ways To Increase Your IT Value.* Lesson No. 1: Execution is everything, so don't get embroiled in endless analysis, writes guest columnist Matthew Krieger of Reader's Digest.

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News Briefs **12, 16**  
Letters **23**  
Company Index **56**  
How to Contact CW **56**  
Shark Tank **58**

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**SECURITY:** The war against Iraq will likely trigger an increase in international hacker attacks. There are steps you can take to reduce your exposure. [QuickLink 37112](#)

### IT Salaries Hold On

**CAREERS:** Meta Group's Maria Schaefer, in her debut as a Computerworld.com career columnist, concludes that IT salaries and rates are faring better than those for non-IT jobs. [QuickLink 37117](#)

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### Managed C++ vs. Unmanaged C++

**DEVELOPMENT:** Which is faster? The answer may surprise .Net enthusiasts. [QuickLink 37103](#)

### Keeping Blended Threats at Bay

**SECURITY:** David Ayleworth of eSofT examines a new generation of Internet worms and what you can do to defend your networks against them. [QuickLink 37100](#)

### Review: PowerBook 17

**MACINTOSH:** We get our hands on one of Apple's superwide PowerBook 17 laptops and find that it's more of a portable desktop than a machine for road warriors — unless you have a large lap. [QuickLink 37105](#)

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Knowledge Centers

QuickLink s2570

The Online Store

QuickLink s2420

# Global Firms Confident About Disaster Recovery

**Post-9/11, many businesses feel better prepared**

BY LUCAS MCMILLAN

**S**EVERAL LARGE companies last week said they're now better prepared for IT disaster recovery work that may be required as a result of the war with Iraq, thanks largely to investments they made after the Sept. 11, 2001, terrorist attacks. For example, Loews Corp., a New York-based holding com-

pany that owns businesses in industries such as insurance, travel and offshore drilling, has been building up the end-user access capabilities on its corporate intranet as part of a business continuity plan that was put in place last year.

In part because of 9/11, Loews has deployed multiple remote access points through authentication servers and virtual private networks, said Al Alexander, manager of Loews' information center. Those steps include the installation of a secure access system

called e-Gap, developed by Whole Communications Inc. in Fort Lee, N.J.

"If there was a reason our building was incapacitated — if there was a chemical attack, where people couldn't get to work — communications and intranet-based applications could still function from any machine in the world," Alexander said.

Wendall Fox, a CIO at a global company in the hospitality industry, said his business unit made sure that its steps of a secure access system

were up to date before the war began in Iraq.

"We've learned from 9/11 that we have to be ready," said Fox, noting that his company lost a hotel when New York's World Trade Center was destroyed. "I think that we've taken all the precautions necessary. But I certainly, one can't predict what might happen."

Chicago-based brokerage Bright Trading LLC last year expanded its redundant data-backup systems and communications networks in response to the 9/11 attacks. "We have backups of data in our headquarters and maintain auxiliary backups in Chicago and New York," said director of education Don Bright. "We could switch over to any of our trading floors in the event that one went down." ▶

Continued from page 1

## IT Security

Last week, IT executives at companies contacted by Computerworld said they were reviewing their security and disaster preparedness plans even as they held out hope that disruptions would be minimal.

"If history is any guide, I don't expect any tremendous amount of cyberterrorism being focused on us now," King said. "We just want to make sure that we are not in any way vulnerable to causal or simple attacks."

The biggest threat will come from "politically motivated, low-level cyberattacks" aimed at "targets of opportunity," according to a report released by Stamford, Conn.-based Gartner Inc. in February. Such attacks will be designed to disrupt operations and vandalize Web sites with political messages, the report stated.

### Contingency Plans

Still, most US corporations aren't expecting a major business disruption from the war in Iraq, though a majority of companies have global IT contingency plans in place, according to the results of a survey of 60 companies released

last week by Boston-based AMR Research Inc.

One such company is Betts USA Inc., a Florence, Ky.-based manufacturer of tubes and injection-molded components with operations in several countries, including India and China.

Like Lehman, Betts is going over its defenses with a fine-toothed comb, making sure that its firewalls are properly configured, that virus definitions and software patches are fully updated and that proper tape backup processes are in place.

The company also has plans to get in touch with its hardware distributor to make sure spare equipment is available if it's needed, said Dennis Roell, IT manager at Betts. Physical security, facilities access and disaster recovery processes are being reviewed at all plants, and Betts is getting in touch with its Internet service provider to review its security and contingency plans as well, Roell said.

"It's all of the same stuff that went into the Y2K preparation," he said. "We are just reaffirming everything we have done to make sure we have indeed thought this through."

"In terms of IT security, we continue to focus on business



ACCORDING TO ROYAL CARIBBEAN CRUISES LTD., ITS SHIPS HAVE BEEN OPERATING AT THE "HIGHEST LEVEL OF SECURITY ALERT" SINCE THE ATTACKS OF SEPT. 11, 2001.

continuity for key systems and heightened vigilance for political activism," said Bill Smathers, director of enterprise security services at Avnet Inc., a \$9 billion technology distributor in Tempe, Ariz., that has customers in 63 countries.

"Physical security is the most immediate focus," Avnet

has a limited presence in the Middle East, and our highest priority would be the safety of our employees within the military theater of operations," Smathers said. The company has formed an emergency response team that includes key functions such as IT, corporate communications, quality assurance, transportation and travel, he said.

"All have plans in place to keep business interruptions to a minimum in the event of a crisis," Smathers said, declining to elaborate.

In some cases, previous preparations are paying off. All of Royal Caribbean Cruises Ltd.'s ships have been operating at the "highest level of security alert" since the attacks of Sept. 11, 2001, said Tom Murphy, CIO at the Miami-based company.

According to Murphy, Royal Caribbean is the first cruise company to be ready with the Advanced Passenger Information System, an electronic passenger-tracking system mandated by the U.S. Department of Homeland Security [QuickLink 35467]. As a result of such measures, "we don't have any specific concerns relative to IT security" stemming from the Iraq crisis, Murphy said. ▶

## Postwar Iraq May Be Big IT Market

### Country has financial, educational resources to be Middle Eastern IT power

BY PATRICK THIBODEAU

MARSHALTON

Even before the first missiles were launched at Baghdad last week, Iraq's IT infrastructure was primitive, a result of years of war and economic sanctions. But if Iraq emerges from the showdown with the U.S. as an open society, it could become a major technology market for U.S. companies.

"Every business-minded person is looking at Iraq after the war because it is a very rich country," said Riad Sufar, director of Middle Eastern and North African operations at enterprise systems vendor Stratus Technologies Inc. in Maynard, Mass. "The needs are tremendous."

Stratus expects to focus on

a horizontal market instead of vertical segments because it sees ubiquitous need for its systems in Iraq after any military actions have ended. Sufar said he believes Iraq's market potential, as it moves to replace out-of-date business and health systems, is bigger than that of many of its neighbors, including Jordan, Lebanon, Egypt, the United Arab Emirates and perhaps even Saudi Arabia.

Adel Ahmid agreed. The senior official at Kuwait-based systems integrator International Turnkey Systems said in a telephone interview last week that he thinks Iraq will be a "huge" market. Turnkey Systems is a Sun Microsystems Inc. partner. Iraq currently has limited technology resources, said

Ahmid. "It's like an empty place; you have to fill it out," he said.

One measure of Iraq's technological isolation is Internet use. Austin, Texas-based Matrix NetSystems Inc., which measures Internet performance, said that although the number of Internet hosts worldwide exceeded 200 million last year, there are none in Iraq. Moreover, there is only one domain name with the Iraq country code of .iq, and it's registered in the United Arab Emirates. Much remains uncertain.

One U.S. Department of Commerce official pointed out that Iraq's potential will "depend on the nature of the post-Saddam regime, its openness and tolerance." Less-open regimes have proved less adept at integrating IT and telecommunications infrastructures. Moreover, no one knows whether Saddam

Hussein will act in ways that could make rebuilding the nation difficult, such as damaging oil wells or using radiological, chemical or biological weapons.

While the war naturally raises questions about the Middle Eastern country's future, Iraq has the population and wealth to finance an IT upgrade. It is about the size of California and has a population of 24 million, a literacy rate of nearly 60% and vast oil reserves.

"There does promise to be a limited bonanza [for IT companies] in the longer term," said Dan Milkovic, an

Every business-minded person is looking at Iraq after the war

By Patrick Thibodeau  
Middle Eastern and North African operations, Stratus Technologies Inc.

analyst at Gartner Inc. in Stamford, Conn. Iraq relies on no-name PC clones, and export restrictions have kept it from buying enterprise servers from U.S. firms, he said. Much of its software is several releases old, Milkovic added, and the country is "heavily dependent on pirated software."

The potential financial impact on U.S. firms is hard to gauge. Bill Wymann, an analyst at Washington-based The Precursor Group, which advises institutional investors, said the needs of Iraq aren't likely by themselves to make a meaningful difference to the bottom lines of large vendors.

But if U.S.-subsidized IT spending in Iraq were to hit \$5 billion initially — that — coupled with U.S. government IT spending, which Precursor expects to rise by 15% next year from roughly \$50 billion in 2003 — "is substantial enough to matter," he said. ■

ing OC3 terrestrial connections throughout the region. DISA plans to rely on commercial contractors "to the maximum extent possible" and will bring them in once planning for a postwar communications infrastructure is complete, the spokesman said.

The Pentagon has a history of using commercial firms to provide critical telecommunications and IT support during and after military operations.

For example, Sprint Corp. was the principal U.S. contractor for building the physical infrastructure for voice and data networks in Bosnia in the late 1990s after the war there. Sprint is now in informal talks with military and civilian agencies about building a voice and data infrastructure in Iraq after hostilities subside, Sprint spokesman Steve Lanceford said last week.

Natasja Haubold, a spokeswoman for WorldCom Inc., said WorldCom has an extensive list of federal contracts and is "always working with

[the government] closely ... to discuss current and future needs," which would include those associated with U.S. involvement in Iraq.

Also certain to be affected by the Iraq war is Paris-based Alcatel, a major networking vendor with operations in 130 countries. It was designated by the United Nations to provide basic telecommunications services in Iraq at the end of Operation Desert Storm in 1991, said Mark Burnworth, an Alcatel spokesman. Alcatel has since received contracts worth \$85 million for reconstruction of telecommunications infrastructure in Iraq, all approved by the UN's Oil for Food Committee, Burnworth said.

Nortel Networks Ltd., meanwhile, hasn't made any business plans for postwar Iraq. "We're much more concerned with the outcome of the war than whether there's a profit for us at this stage," said Malcolm Collins, president of Nortel's Enterprise Networks division. ■

Continued from page 1

## Reconstruction

ated in October, said 17 working groups have been established, including an economics and infrastructure group focused on IT infrastructure and telecommunications requirements.

Saheb Sandi, a member of the infrastructure working group, fought in the Kurdish revolution in 1974 and now owns an investment bank in Washington. Based on information provided by people inside Iraq, Sandi estimated that the cost of modernizing Iraq's data and voice networks would be between \$1 billion and \$1.5 billion and that it would take six to eight years to complete.

"It could definitely go much faster," said Sandi. "But nobody really knows exactly how to assess the infrastructure without knowing what the damage will be. So we analyzed everything as is."

Ahmed Al-Hayderi, a member of the infrastructure working group who defected from Iraq in 1980, works for a global telecommunications firm in the U.S. According to Al-Hayderi, the community of 4 million Iraqi exiles includes many senior corporate executives from technology companies that are eager to invest in Iraq and assist in the rebuilding.

"There is significant infrastructure available in the military sector," said Al-Hayderi, adding that the working group is concentrating on how to leverage that infrastructure to "leapfrog to a cost-effective deployment of a fully ubiquitous telecommunications infrastructure throughout Iraq."

Similarly, the U.S. Department of Defense is engaged in planning for the IT and telecommunications requirements of occupation forces that can serve as a framework for a more permanent infrastructure for postwar Iraq.

A spokesman for the Defense Information Systems



STRUTUS TECHNOLOGIES INC.

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### GUARDING AGAINST WAR-PROVOKED CYBERATTACKS

**Evaluate and test personnel security, including background checks, access to facilities and interaction with electronic systems.**

**Provide multiple communication methods for computer incident response teams and of critical personnel.**

**Update all systems with current security patches.**  
**Update virus signatures daily.**

**Initiate vulnerability management, including penetration testing.**

**Monitor security distribution lists for the latest updates and trends.**

**Review external service providers' security measures.**

STORY BY CHRISTOPHER STANFORD

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### Feds Advocate Operation Liberty Shield

BY DALE WESTON  
WASHINGTON

The Department of Homeland Security (DHS) is calling all Americans, especially business owners and operators of critical infrastructure, to report any suspicious infrastructure incidents or intrusions, as part of a nationwide nation-wide coordinated Operation Liberty Shield.

"We ask the private sector and general public to report any suspicious activity to us via the National Infrastructure Protection Center Web site or the FBI," said Steve Wrap, a spokesman for the DHS. "We are increasing monitoring of the Internet, contact with our Information Sharing and Analysis Centers (ISACs), Internet service providers and the Internet security industry."

Secretary of Homeland Security Tom Ridge activated Operation Liberty Shield on March 18, soon after President Bush issued Executive Order 13222 on directions to leave Iraq or leave military action.

"We will continue to monitor the Internet for signs of a potential terrorist attack, espionage, terrorism and other malicious information warfare," said Wrap. The Department of the Treasury has also increased its monitoring of the nation's financial networks and payment systems, Wrap said.

Shortly after Wrap activated Liberty Shield, DHS held a teleconference to clarify specific threat data with the various private-sector ISACs. ISACs represent information-sharing between the private owners of critical systems and the government, Wrap said.

# Postwar Iraq May Be Big IT Market

## Country has financial, educational resources to be Middle Eastern IT power

BY PATRICK THIBODEAU  
WASHINGTON

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"Every business-minded person is looking at Iraq after the war because it is a very rich country," said Riaz Sada, director of Middle Eastern and North African operations at enterprise systems vendor Stratus Technologies Inc. in Maynard, Mass. "The needs are tremendous."

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Much remains uncertain. One U.S. Department of Commerce official pointed out that Iraq's potential will "depend on the nature of the post-Saddam regime, its openness and tolerance." Less-open regimes have proved less adept at integrating IT and communications infrastructures. Moreover, no one knows whether Saddam

Hussein will act in ways that could make rebuilding the nation difficult, such as dismantling oil wells or using radiological, chemical or biological weapons.

While the war naturally raises questions about the Middle Eastern country's future, Iraq has the population and wealth to finance an IT upgrade. It is about the size of California and has a population of nearly 24 million, a literacy rate of nearly 60% and vast oil reserves.

"There does promise to be a limited bonanza [for IT companies], in the longer term," said Dan Miklovic, an

analyst at Gartner Inc. in Stamford, Conn. Iraq relies on no-name PC clones, and export restrictions have kept it from using enterprise servers and computing equipment, he said. Much of its software is several releases old, Miklovic added, and the country is "heavily dependent on pirated software."

The potential financial impact on U.S. firms is hard to assess. Bill Wyman, an analyst at Washington-based The Presidio Group, which advises institutional investors, said the needs of Iraq aren't likely to themselves to make a meaningful difference to the bottom lines of larger vendors.

But if U.S.-sponsored IT spending in Iraq were to hit \$5 billion initially, that would coupled with U.S. government IT spending, which

Presidio expects to rise by 1% next year from roughly \$50 billion in 2003 — "is substantial enough to matter," he said. ■

Continued from page 1

## Reconstruction

ated in October, said 17 working groups have been established, including an economics and infrastructure group focused on IT infrastructure and telecommunications requirements.

Rubar Sandi, a member of the infrastructure working group, fought in the Kurdish revolution in 1974 and now owns an investment bank in Washington. Based on information provided by people inside Iraq, Sandi estimated that the cost of modernizing Iraq's data and voice networks would be between \$1 billion and \$1.5 billion and that it would take six to eight years to complete.

"It could definitely go much faster," said Sandi. "But nobody really knows exactly how to assess the infrastructure without knowing what the damage will be. So we've analyzed everything as is."

Ahmed Al-Hayderi, a member of the infrastructure working group who defected from Iraq in 1980, works for a global telecommunications firm in the U.S. According to Al-Hayderi, the community of 4 million Iraqis excludes many senior corporate executives from technology companies that are eager to invest in Iraq and assist in the rebuilding.

"There is significant infrastructure available in the military sector," said Al-Hayderi, adding that the working group is concentrating on how to leverage that infrastructure to "leapfrog to a cost-effective deployment of a fully ubiquitous telecommunications infrastructure throughout Iraq."

Similarly, the U.S. Department of Defense is engaged in planning for the IT and telecommunications requirements of occupation forces that can serve as a framework for a permanent infrastructure for postwar Iraq.

A spokesman for the Defense Information Systems

Agency (DISA), the Pentagon's central network systems provider, said the agency has already contracted for significant commercial information systems support.

Although the spokesman declined to name companies that will be involved in the work, he said some of the contracts are focused on providing

ing OC3 terrestrial connections throughout the region. DISA plans to rely on commercial contractors "to the maximum extent possible" and will bring them in once planning for a postwar communications infrastructure is complete, the spokesman said.

The Pentagon has a history of using commercial firms to provide critical telecommunications and IT support during and after military operations.

For example, Sprint Corp. was the principal U.S. contractor for building the physical infrastructure for voice and data networks in Bosnia in the late 1990s after the war there. Sprint is now in informal talks with military and civilian agencies that building a voice and data infrastructure in Iraq after hostilities subside, Sprint spokesman Steve Leventford said last week.

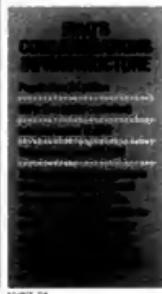
Natasha Haubold, a spokeswoman for WorldCom Inc., said WorldCom has an extensive list of federal contracts and is "always working with

[the government] closely ... to discuss current and future needs," which would include those associated with U.S. involvement in Iraq.

Also certain to be affected by the Iraq war is Paris-based Alcatel, a major networking vendor with operations in 130 countries. It was designated by the United Nations to provide basic telecommunications services in Iraq at the end of Operation Desert Storm in 1991, said Mark Burnham, a Alcatel spokesman. Alcatel has

already received contracts worth \$40 million for reconstruction of telecommunications infrastructure in Iraq not approved by the UN's Oil for Food Committee, Burnham said.

Networx Ltd., meanwhile, hasn't made any business plans for postwar Iraq. "We're much more concerned with the outcome of the war than whether there's a profit for us at this stage," said Malcolm Collins, president of Networx's Enterprise Networks division. ■



SOURCE: DISA

# CIOs Don't Expect War to Have Major Impact on Global IT Projects

Travel could be a problem, but Web and videoconferencing seen as alternatives

BY THOMAS HOPPMAN

ALTHOUGH CIOs interviewed last week said they're deeply concerned about the potential business impact of the war with Iraq, few foresee any significant effect on international IT projects that are under way or in the pipeline.

But some IT executives warned that that could change if the war causes travel problems for their companies' employees or customers.

For example, Cardinal Health Inc. in Dublin, Ohio, is working on multiple enterprise resource planning (ERP) projects "that may experience travel-related impacts to their schedules," said Richard Gius, the medical equipment supplier's senior vice president of IT.

The projects most at risk are those that require consultants or other external workers to travel from country to country, Gius said. IT projects contained within individual countries on any of the five continents where Cardinal has operations should see little impact from the war, he added.

Mark Hefley, senior vice president and chief technology officer at Wyndham International Inc., said the Dallas-based operator of hotels and vacation resorts doesn't have any major IT projects in the works in the U.S. or internationally that are likely to be adversely affected by the war.

However, Hefley added that if the war continued for more than a week or two and adversely affected the travel industry, Wyndham would have to make adjustments to shore up its business. "I'm most concerned with domestic air travel and lack of passenger activity," he said. "Airlines are feeders to our hotel markets."

MasterCard International

Inc. doesn't expect the Iraq conflict to affect any of its international projects, including an ongoing conversion of its European systems to its global IT architecture, said Jerry McElhatton, president of global technology and operations at the credit card company's data center in O'Fallon, Mo.

If international travel disruptions do arise, Purchase, NY-based MasterCard plans to expand its use of teleconferencing, McElhatton said. Teleconferencing technology "is not always a suitable alter-

native" to travel, but it can facilitate communications when necessary, he noted.

Three of MasterCard's IT staffers have been called up to active military duty, and a few more could follow. But McElhatton said he hasn't had to replace anyone with interim contractors, nor has he had to create internal work-arounds to support MasterCard's operations.

There are signs that the uncertainties preceding the war are affecting IT spending. For example, Oracle Corp. last week reported a 4% decline in sales of new software licenses for its third quarter, which ended

## MANAGING INTERNATIONAL IT PROJECTS DURING WARZONE

If travel is restricted, use video, Web conferencing to continue projects.

Establish protocols ensuring travel guidelines, including whether workers will be able to deliver products on time, says John Carrow, CIO at the Blue Bell, Pa.-based IT vendor.

Feb. 28: Jeff Henley, Oracle's chief financial officer, said the looming war led corporate users to hold off on purchases last month after business was relatively strong in December and January.

Unisys Corp. has already completed the bulk of a global rollout of Oracle's ERP applications and Siebel Systems Inc.'s customer relationship management software, with the exception of putting some final touches on an ERP implementation in Latin America. "So a great deal of our heavy lifting is behind us," said John Carrow, CIO at the Blue Bell, Pa.-based IT vendor.

Like many other companies, Unisys has cut back on corporate travel because of the weak economy and is now "very adept" at conducting IT-related business via teleconferences, videoconferences and the Web, Carrow said. ■

## War May Prompt Firms To Delay Offshore Work

BY PATRICK THIBODEAU  
WASHINGTON

The Iraq war's impact on offshore outsourcing could be similar to what happened last year during the crisis between Pakistan and India, when for several months there was a decline in offshore contracts and a renewed focus on contingency planning. Once the threat declined, outsourcing to India largely returned to normal.

But if the Iraq war is protracted and U.S. interests, such as India's outsourcing centers, are attacked by terrorists, then U.S. businesses will likely pull operations back in-house, said Debashish Sinha, an analyst at Gartner Inc. "There is an infinite number of variables that could affect this," Sinha said.

Meta Group Inc. last month predicted that offshore outsourcing would grow 20% annually, and Dean Davison, an analyst at the Stamford, Conn.-based firm, said he's not expecting

that growth rate to be "significantly hindered" by the war.

But Davison, who canceled a trip to India he was planning to take this week, said his forecast could change if the war prompts global unrest. "If this expands . . . then all bets are off," he said.

The war is already having a short-term impact on outsourcing, primarily because of travel concerns.

For instance, Telvista Co., an Austin, Texas, firm that provides offshore services in Mexico, decided to reschedule a conference planned this

week in San Diego after numerous clients canceled travel plans because of the war. "There's a reluctance to travel, even in the U.S.," said Suzy Weaver, Telvista's vice president of operations.

But analysts expect businesses to continue with their longer-range offshore planning, if wary.

Baltimore-based investment management firm T. Rowe Price Group Inc., which manages more than \$140 billion in assets, does a significant amount of its new-application development, platform rehosting and application management work via an India-based outsourcing firm. The war so far has not affected its overseas work, said Ram Mouli, the company's vice president of technology planning and development.

The challenges during a war-type emergency are the issues related to travel from and to India by the on-site resources," Mouli said. But future projects that are under consideration, such as application hosting and the setting up of a disaster recov-

ery site in India, may be reconsidered. "We are re-evaluating these projects, as we are worried about the war and the long-term effect on system and application access," Mouli said.

Marty Clague, president and CEO of Covansys Corp., a Farmington Hills, Mich.-based company that provides offshore services in India, said he expects some trip cancellations and deferments in offshore work. But being ready for problems is part of offshore planning, he said.

Covansys has server farms in the U.S. connected to centers in India that routinely back up data and could be used to transfer projects. The firm also has employees in India who have visas and are ready to travel to the U.S. in the event of an emergency, said Clague. ■

Reporter Jai Kumar Vilayyan contributed to this report.

## FINE PRINT

Companies should make sure they're protected in their outsourcing contracts. [QuickLink.37723](http://QuickLink.37723) [www.computerworld.com](http://www.computerworld.com)



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Reporter Jai Kumar Vileyon contributed to this report.

### FINE POINT

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www.computerworld.com

## If you're busy monitoring your servers, who's watching your business?



The new HP ProLiant DL760 8-way with hot-plug RAID memory.

- Ultradense 4u modular chassis with up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64 GB of hot-plug memory
- Overclocking FB chipset
- 6-64 bit/100 Mbit PCI-X slots
- Integrated Lights-Out Standard (iLO) for Remote Server Mgmt.



The new HP ProLiant DL760 63 8-way with hot-plug RAID memory.

- Up to eight Intel® Xeon™ MP 1.5 GHz or 2.0 GHz processors
- Up to 64 GB of hot-plug memory
- Overclocking FB chipset
- 10-64 bit/100 Mbit PCI-X,
- 1-4x 23 Mbit slots
- Remote Insight Light-Out Edition II (optional) for Remote Server Mgmt.

What challenges do you face today? Decreasing budgets? The lurking possibility of downtime? It's hard enough to focus on moving your business forward when you're constantly looking over your shoulder to see if everything is up and running.

Besides, that's the job of the new HP ProLiant DL700 series running Intel® Xeon™ MP processors. An adaptive infrastructure begins with these HP ProLiant servers which come equipped with tools that make it easy to add or remove memory, processors, and memory with hot-plug RAID memory and memory from HP you can add or replace DMA44 without turning your system off. Both work with the HP ProLiant Essentials Foundation Pack featuring Insight Manager 7 software which monitors and controls your infrastructure for maximum uptime.

At the end of the day, you'll have more control over your infrastructure, help avoid unplanned downtime and reduce overall maintenance costs. Not to mention freeing yourself up for more important things.

To learn how HP ProLiant servers can be a part of maximizing your company's uptime, download CNP's executive brief on high availability or [www.hp.com/go/proliant85](http://www.hp.com/go/proliant85) or call 1-800-282-6072, option 3, and mention code TPL.



## AT DEADLINE

### EDS Replaces Its Top Executive...

Electronic Data Systems Corp. said that Dick Brown has stepped down as chairman and CEO of the embattled IT services vendor. Plano, Texas-based EDS has replaced Brown with Michael H. Jordan, who retired as CBS Corp.'s CEO in 1998. EDS also said that Jeffrey Heller, who left the company in 2000 after 34 years there, has returned to serve as its president and chief operating officer.

### ... And Loses User Certege to IBM

Certege Inc. in Alpharetta, Ga., said it severed a U.S. IT services contract with EDS and signed a 10-year deal with IBM. The new pact is valued at \$150 million and adds to agreements under which IBM does IT services work for Certege in the U.S. and Australia. Certege, which provides credit and debt processing services, said it will take a charge of up to \$10 million to cover early-exit payments to EDS.

### Palm Reports Q3 Losses, Sales Drop

Palm Inc. reported a \$172 million loss for its third quarter, which ended Feb. 28, as revenue fell 29% from the year-earlier level to \$200 million. Milpitas, Calif.-based Palm said fourth-quarter revenue will likely be down between 10% and 20% over year year. It added that it is delaying a planned spin-off of its Palm-Source Inc. operating system unit from midyear to late summer.

### Survey Cites IT Burnout Problems

Meta Group Inc. this week plans to release the results of a survey in which 77% of the 666 IT managers it questioned said employee burnout is a serious issue at their companies. (See Frankly Speaking, page 58.)

## MARK HALL • ON THE MARK

# Web Services Remain Behind Firewall...

... and probably will stay there for the next year or longer. Or so say vendors and developers who work in the field. **Everything from immature standards to security concerns** seems to be holding Web services in check, they say. "It's an immature field, and the standards are still evolving," observes James Franklin, director at Extreme Logic Inc. in Atlanta. He says only 10% to 20% of the clients of his 200-person IT consultancy are dipping their toes into Web services, and they're

doing so only for internal integration work. "Most of our customers are not ready for depending on outside Web services," he says, noting that users are *unerved by the fact that new standards will always crop up*, such as the recent announcement of one for Web services management. Keith Franklin (no known relationship to James), president and chief software architect of Empowered Software Solutions Inc., a Net consultant in Burr Ridge, Ill., claims that while effective security is possible with Web services, people remain skeptical "because it's not part of the specification."

■ Mercury Interactive Corp. has leapt into the Web services tools business. But according to Verner Rorolle, vice president of business development, the Sunnyvale, Calif.-based software company has seen virtually all the demand focused on testing tools, which leads

him to conclude users aren't deploying these new applications outside their companies because that would require a different set of production and management tools. Part of the problem resides in the issue of responsibility. For example, service-level agreements (SLAs) are well defined and managed among current

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"SLAs are still nascent on the Web services side," he says. "If you're ready to experiment with Web services, but all you hear from management is 'ROI ROI ROI,'" Franklin (names, not Keith) argues that it is the hands-down winner on cost to deploy, primarily because of Microsoft Corp.'s stronger development tools. Still, he acknowledges that if you already have a Java 2 Enterprise Edition (J2EE) environment, switching to .Net is unlikely to deliver meaningful returns on investment... if you want to

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■ **However** the war affects IT business, one thing you can bet on is that **Linux will emerge victorious**. Research from Evans Data Corp. shows that 52% of developers now target the open-source operating system to run their software. And Linux will get another boost next week when Austin, Texas-based Metrowerks, a wholly owned subsidiary of Motorola Inc., unveils its Smart Gateway 857 hardware/software development combo for large network systems such as switches and routers. The new development tools will put Linux inside systems that previously depended on proprietary operating systems. Reason? Operating system licensing fees are too steep. ■ **ROI a question and developer tools available now**. Expect to see a new module for voice over IP developers by June. ■ **No voice over IP** developers will need 3-D displays, according to Joel Pollack, vice president for business development at Sharp Microelectronics of the Americas in Camas, Wash. He claims that the phenomenon will begin with 3-D games on cell phones. In Japan this year, and help drive down costs to the point that, within the next couple of years, IT managers at medical and R&D sites will need to bone up on 3-D displays. And you thought flat panels would be the end of it. ■

## Unisys Updates Server Sentinel Software

BY TOM KRAZIT

Unisys Corp. today is releasing the newest version of its server management software, along with new software that manages applications on its data center servers.

Server Sentinel 2.0 will be bundled with the company's E57000 server series, which uses eight to 32 Xeon processors or 32 Itanium processors from Intel Corp. The software is designed to ease systems administration through self-

management and self-healing features, said Jon Burns, director of Sentinel programs at Blue Bell, Pa.-based Unisys.

The software was developed to detect hardware failures before they happen and prevent those failures from cascading around a network, Burns said. Server Sentinel will determine what conditions might lead to a specific problem and direct traffic on a network to fall over to the "best fit" node based on that

specific problem, he said. This will allow systems administrators to isolate and repair failures without losing the entire network, Burns added.

Unisys today is also releasing a product called Application Sentinel in three versions: Application Sentinel for Resource Management, for Consolidation and for Macrom's SQL Server.

The consolidation module allows companies to run the same applications on fewer

servers by doing an inventory of existing server resources and analyzing how to best distribute the load, Burns said.

The software is available with E57000 servers, which start at about \$100,000 for an eight-way configuration, Burns said. However, Unisys also plans to launch a new E7000 server in the next few weeks at a much cheaper price, he said. Pricing hasn't been finalized for the new product. ■

Kruzel writes for the IDG News Service.



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business-partner applications. "But," Rerolle says, "SLAs are still nascent on the Web services side." If you're ready to experiment with Web services, but all you hear from management is "ROI ROI ROI" Franklin (James, not Keith) argues that Net is the hands-down winner on cost to deploy, primarily because of Microsoft Corp.'s stronger development tools. Still, he acknowledges that if you already have a Java 2 Enterprise Edition (J2EE) environment, switching to .Net is unlikely to deliver meaningful returns on investment. If you want to

jump into the .Net vs. J2EE Web services debate, visit [www.webservicesarchitect.com](http://www.webservicesarchitect.com) and join the fray. ■ That may going on in Iraq has affected the Franklin boys differently. One (James) attributes the hesitation about corporate IT buying decisions to the lingering uncertainty of war. However, he says, "if the war is quick, there could be a bit of a bounce in business." The other (Keith) says the war with Iraq hasn't changed his software consulting business at all. "I haven't heard a peep from one our clients," he says. "They're not even asking for extra security screening of our on-site staff."

■ However the war affects IT business, one thing you can bet on is that **Linux will emerge victorious**. Research from Evans Data Corp. shows that 52% of developers now target the open-source operating system to run their software. And Linux will get another boost next week when Austin, Texas-based Metroworks, a wholly owned subsidiary of Motorola Inc., unveils its Smart Gateway 857 hardware/software development combo for large network systems such as switches and routers. The new development tools will put Linux inside systems that previously depended on proprietary operating systems. Reason? Operating system licensing fees are too steep. The 857's evaluation and developer kits are available now. Expect to see a voice module for voice over IP developers by June. ■ *No foolin', computer games will make 3-D displays ubiquitous*, according to Joel Pollack, vice president for software development at Sharp Microelectronics of the Americas in Camas, Wash. He claims that the phenomenon will begin with 3-D games on cell phones in Japan this year and help drive down costs to the point that, within the next couple of years, IT managers at medical and R&D sites will need to bone up on 3-D displays. And you thought flat panels would be the end of it. ■

### Unisys Updates Server Sentinel Software

BY TOM KRAZIY

Unisys Corp. today is releasing the newest version of its server management software, along with new software that manages applications on its data center servers.

Server Sentinel 2.0 will be bundled with the company's E57000 series servers, which use eight to 32 Xeon processors or 32 Itanium processors from Intel Corp. The software is designed to ease systems administration through self-

management and self-healing features, said Jon Burns, director of Sentinel programs at Blue Bell, Pa.-based Unisys.

The software was developed to detect hardware failures before they happen and prevent those failures from cascading around a network, Burns said. Server Sentinel will determine when conditions might lead to a specific problem and direct traffic on a network to fail over to the "best fit" node based on that

specific problem, he said. This will allow systems administrators to isolate and repair failures without losing the entire network, Burns added.

Unisys today is also releasing a product called Application Sentinel in three versions: Application Sentinel for Resource Management, for Co-Consolidation and for Microsoft's SQL Server.

The consolidation module allows companies to run the same applications on fewer

servers by doing an inventory of existing server resources and analyzing how to best distribute the load, Burns said.

The software is available with E57000 servers, which start at about \$100,000 for an eight-way configuration, Burns said. However, Unisys also plans to launch a new E57000 server in the next few weeks at a much cheaper price, he said. Pricing hasn't been finalized for the new product. ■

Kraziy writes for the IDG News Service.

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## BRIEFS

### Oracle Up in Q3, But Sales Droop

Despite lower sales of new software licenses and a decline in its IT services business, Oracle Corp. reported year-over-year increases in revenue and profits for its third quarter. Revenue totaled \$2.31 billion in the quarter that ended Feb. 28, up 2% from a year ago as a result of increased user spending on software updates and product support contracts. Oracle said profits rose 12% to \$571 million.

### Huawei Rejects Cisco's Claims . . .

Huawei Technologies Co., a networking vendor in Shenzhen, China, responded to charges of patent infringement and technology copying that Cisco Systems Inc. lodged in January. In a filing to the U.S. District Court in Marshall, Texas, Huawei denied many of Cisco's claims and challenged its legal standing to bring others.

### ... And Inks Sales Deal With 3Com

Huawei and Santa Clara, Calif.-based 3Com Corp. said they're forming a joint venture to develop and sell networking products. 3Com is investing \$100 million in the Hong Kong-based joint venture and will initially hold a 49% interest, with Huawei owning the rest. The joint venture will sell its products in China and Japan, and 3Com will sell them under its own brand in the rest of the world.

### Short Takes

The Kerberos development team at MIT warned of "critical" cryptographic shortcomings in Version 4 of the end-user authentication protocol. It added that details of the flaw have been leaked on the Internet. . . . GATEWAY INC. in Poway, Calif., said it's cutting 17% of its workforce. The company also said it will launch new corporate servers next month.

# Microsoft Plans Move To Autonomic Territory

Initiative to make 'operationally aware' applications should ease management

BY CAROL BILKA  
EW.COM

**M**ICROSOFT CORP. last week took the occasion of its annual Management Summit to lay out a long-term plan to help IT shops simplify and automate their operations and manage and monitor their systems.

Company executives introduced a Dynamic Systems Initiative (DSI) that aims to simplify the design, development and deployment of applications that are "operationally aware." IT professionals will gain the flexibility to expand and co-locate hardware and software resources based on business logic and automate operations, said Bill Veghte, vice president of the Windows Server Group.

The Dynamic Systems Initiative essentially is Microsoft's belated, but much-needed, response to the autonomic computing plans that IBM, Hewlett-Packard Co. and Sun Microsystems Inc. are promoting for self-healing, self-configuring and self-optimizing systems, analysts said.

#### Major Differences

But Microsoft's initiative differs from the competition's plans in two major ways. The Dynamic Systems Initiative focuses on Microsoft products, whereas the competing initiatives better account for the heterogeneous systems found in large data centers, according to analysts.

Another difference is Microsoft's focus on designing systems that are "operationally aware" from the outset. Microsoft is creating an XML-based System Definition Model (SDM) to define and capture the resource, operational and deployment re-

quirements of an application.

The initial incarnation of the SDM is due in 2005 with the Windows release code-named Longhorn, Microsoft officials said (see related story, Page One). Plans call for the SDM to eventually be baked into Microsoft products and development tools, so that any Windows-based application a customer buys or builds can be managed, provisioned and adapted more easily as workload or business needs change.

Michael Niehaus, an IT consultant at Marathon Oil Corp. in Houston, said the SDM concept looks interesting, but he said doubts that it will be viewed as a top priority at his company.

"At this point in time, that entire concept would be lost on most of our developers," he said. "Our developers are struggling with the concept of making applications that can work across slower network links."

The first fruits of Microsoft's DSI are due with the Windows Server 2003 operating system, although they won't necessarily make the April 24 launch date. For in-

stance, the Windows System Resource Manager, which will allow IT managers to allocate CPU and memory to an application, is due to ship via a separate CD.

Another highly touted new feature, called Automated Deployment Services, is due in June. With that tool, a company will be able to deploy hundreds of customized Windows server system images in minutes, according to Microsoft. A beta copy was made available to early adopters last week.

Many of the new features and tools eventually may become appealing to IT shops, but they didn't appear to generate much enthusiasm among conference attendees. Several IT managers expressed confusion about or indifference to the new long-term strategy, and they directed their attention at Microsoft's more immediate product plans.

Sara Scureb, an infrastructure engineer at Daimler-Chrysler Services North America LLC, said she was frustrated to learn that the long-delayed Systems Management Server (SMS) won't be released in manufacturing until September. At last year's Management Summit, Microsoft said the product would ship by the end of June.

"We can only wait so long," she said.

Scureb said her company is anxious to use the mobile client and asset management features in the SMS 2003 product, but the delay has prompted it to look at a competing product from Altiris Inc. in Lincoln, Utah.

The other main product in Microsoft's management arsenal is also being refreshed. The company announced last week that a new version of Microsoft Operations Manager (MOM), its event and performance management software for servers and applications, is due in 2004. New features will include a task-based operator console, auto-alert resolution, improved reporting capabilities and a broader array of management packs for managing Microsoft products such as Exchange Server and SQL Server.

#### New Product

As part of the DSI, Microsoft also announced that SMS and MOM will be integrated into a new product called System Center. The initial version, due next year, will bundle the two products and enable them to share the same data warehouse for unified reporting. The follow-on, due in 2005, will feature deeper integration of the two products and build on the SDM foundation, said Kirill Tatsirinov, vice president of Microsoft's enterprise management division.

While some users lauded the move and said that they expect System Center to be useful, others questioned how the product will fit with their organizational structures.

Brad Jacobson, an operating systems engineer at Wells Fargo Financial Inc. in Des Moines, Iowa, said large companies often have departments focusing on different areas of management. SMS is typically used for desktop administration, and MOM is for servers. "Putting MOM and SMS together doesn't fit our company structure," he said.

Tatsirinov said SMS and MOM will also continue to be available separately. ▶

#### MANAGEMENT MUSCLE

Microsoft plans to add cloud system management

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#### Microsoft's Dynamic Systems Initiative

##### Automated Deployment Services

**Definition:** Provisioning and administration tool that allows companies to deploy servers in a data center environment from a bare-metal state.

**Due:** June 2003.

##### System Definition Model

**Definition:** XML-based model, or blueprint, defining the requirements of an application, the application's operational behavior and the manner in which it is deployed and updated.

**Due:** Starting in 2005.

##### System Center

**Definition:** Management suite that will include Microsoft Operations Manager and Systems Management Server.

**Due:** Initial MOM 2004 and SMS 2003 bundle in summer 2004; fully integrated product in 2005.



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# L.A. Police Seek Bandwidth Boost From WLAN Technology

Officials expect new systems to speed deliveries of graphical data to officers

BY BOB BREWING  
NEW ORLEANS

**F**ACING A NEED for higher-bandwidth communications systems in order to meet increased homeland security requirements, the Los Angeles Police Department (LAPD) plans to install wireless LANs at its 27 police stations within the next three months.

Roger Ham, deputy chief for communications at the LAPD, said at the Cellular Telecommunications & Internet Association's Wireless 2003 conference here that the WLANs will be used to send mag shots, maps and other graphical data to police officers. Transmissions like that aren't feasible on the wireless wide-area network the department installed citywide two years ago.

As part of the WLAN project, the LAPD plans to deploy about 1,500 Pocket PC handheld computers to officers working in vehicles and on foot patrols. The handhelds, made by Symbol Technologies Inc. in Holtsville, N.Y., will include R02.11b WLAN cards designed to let them communicate with wireless access points inside the police stations at raw data transfer rates of up to 11Mbps. By comparison, the LAPD's wireless WAN delivers peak throughput of 19.2K bit/sec.

## Faster Mag Shots

The range of WLAN transmissions is limited to about 300 feet, but Ham said the technology will make it easier to distribute images to police officers in real time. Currently, mag shots are handed out on paper at the roll call for each shift. The WLAN system could also provide a fast way to distribute photos of lost children as part of the Amber

Alert system, Ham said.

Will Strauss, an analyst at Forward Concepts Co. in Tempe, Ariz., called the LAPD's plan "a cheap way to get bandwidth" that officers could use to periodically download important data as they passed by police stations.

Ham, who declined to disclose the expected cost of the project, said he eventually wants to develop an interface between the WLAN radios

built into the Symbol handhelds and the WAN-based Motorola Inc. radios that are now used in police cars. That would let officers use the handhelds as remote units connected to the WAN while outside their vehicles, he noted.

Other police departments, including the ones in Baltimore and in Glendale, Calif., have already installed similar WLAN-to-WAN systems.

Mike Shlasko, director of the public-safety business unit at Symbol, said the company will provide ruggedized handhelds running Microsoft

Corp.'s Pocket PC operating system to the LAPD. He added that Symbol is a subcontractor on the WLAN project to Vytek Wireless Inc. in White Plains, N.Y. The deal between the two firms and the LAPD was finalized during the past few weeks but has yet to be announced, according to Shlasko and Ham. Vytek, a developer of wireless applications, would not comment about the project.

Ham said that he views WLANs as a stopgap measure and added that the LAPD needs additional WAN spectrum for routine duties and



homeland security requirements. For example, the LAPD now has patrols at Los Angeles International Airport. Ham said the department could use more WAN bandwidth to transmit data from the airport's facial recognition systems to police headquarters. ■

## Military Investigates System Intrusion Involving Windows 2000 Security Flaw

Microsoft issues patch, but some users may have reboot problems

BY DAN VERTON  
AND CAROL SLIWA

Pentagon sources last week confirmed that officials are investigating an apparent intrusion into at least one military server through a previously unknown vulnerability in Microsoft Corp.'s Windows 2000 operating system.

Microsoft gave the buffer overflow vulnerability a "critical" severity rating and issued a software patch designed to fix the flaw, which involves a component of Windows 2000 that's used to manage the Web Distributed Authoring and Versioning (WebDAV) protocol. Hackers could use the hole to take control of unprotected Web servers, and Microsoft said it has received isolated reports of attempts to exploit the vulnerability.

The initial attack reports centered around a U.S. Army Web server. But after an inves-

tigation, the Army said it had no evidence that any of its systems had been compromised.

"To the best of our knowledge, an Army system was not attacked," said Col. Ted Dmochowski, director of information assurance at the Army's Network Technology Enterprise Command. "According to our records, the military sites that were attacked did not belong to the Army."

Nonetheless, Dmochowski said in a statement that IT staffers "have taken measures to push the appropriate patch down to all Army networks."

Security analysts described the reported attack as a rare example of a "zero-day" exploit, in which hackers try to take advantage of a software vulnerability that has yet to be

reported and for which there is no available patch.

Jeffrey Jones, senior director of marketing for Microsoft's Trustworthy Computing security initiative, said company officials were told about the vulnerability on March 12 by two customers who reported that they were being actively attacked. Jones declined to disclose further information about the users.

Microsoft typically issues security bulletins on Wednesdays, but Jones said it decided to post the WebDAV warning on its Web site last Monday because of the reports of active attacks.

The company also specified work-arounds for users who may not be able to apply the fix right away.

## More Microsoft Security Holes

SEVERITY  
RATING

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Another overflow flaw in the Windows Script Engine, which is a component of Windows that's written in a language such as Visual Basic Script.

A vulnerability in the Internet Security and Acceleration Server 2000 firewall and Web caching software that could result in denial-of-service attacks.

"We're trying to put an extra emphasis on alternative ways to protect yourself," he said.

Indeed, Microsoft acknowledged that the patch itself could cause problems for some users of Windows 2000 and its Service Pack 2 bug-fix update. After issuing the patch, the company said that it's incompatible with a dozen other fixes developed for the operating system from December 2001 to February 2002.

## Incompatibilities

The incompatibilities may leave IT managers unable to reboot their systems after they install the new patch, according to Microsoft. Users with certain versions of a file called ntskrnl.exe on their Windows 2000 systems should call Microsoft's product support services unit before they apply the patch, Microsoft said.

WebDAV is enabled by default in Version 5.0 of Microsoft's Internet Information Server (IIS) software, which is bundled with Windows 2000. The protocol is a set of HTTP extensions that let users edit and manage files on remote servers. Microsoft said the buffer overflow vulnerability could be exploited by sending a specially written HTTP request to systems running IIS. ■



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## BRIEFS

### Glitch Hits HMO's Rx Label System

Kaiser Permanente Health Plan Inc. said a systems glitch following a power outage may have caused labeling errors on prescriptions dispersed to about 4,700 of its patients on March 13. The Oakland, Calif.-based health maintenance organization added that it was conducting diagnostic testing to determine what happened. No adverse reactions have been reported thus far by patients. Kaiser said.

### Cisco Agrees to Buy Two Vendors

Cisco Systems Inc. announced deals to buy The Linksys Group Inc. in Irvine, Calif., and SignalWorks Inc. in Mountain View, Calif. Cisco will exchange stock that's currently valued at about \$500 million to acquire Linksys, while makes networking products for consumers. The company will use \$33.5 million worth of stock to buy SignalWorks, which develops IP telephony software.

### Publishing Firm Name New CIO

The McGraw-Hill Cos., a publisher and data provider in New York, said it has hired Mostafa Mehrabani as its CIO. Mehrabani, who was named one of Computerworld's Premier 100 IT Leaders in 2001, will report to McGraw-Hill's chief financial officer. He was previously CIO at TRW Inc., an aerospace company that Northrop Grumman Corp. bought in December.

### Short Takes

**SUN MICROSYSTEMS INC.** released a set of tools for developing Java-based Web services applications that utilize its Sun ONE software. . . . **HEWLETT-PACKARD CO.** said it plans to offer full technical support for RED HAT INC.'s Enterprise Linux software to users of HP servers.

# i2 Looks to Simplify Supply Chain Software With Upgrade

New release includes vertical industry templates, support for Web services

BY MARY L. BORONI

**B**EAT BY ongoing losses and a probe by the U.S. Securities and Exchange Commission, i2 Technologies Inc. hopes an upgrade of its supply chain management software that's being announced this week will help it get back on track with users.

The Dallas-based software vendor said its i2 Six release will be less expensive to install and easier to use than prior versions were. The new applications include prebuilt templates for various vertical industries and will support out-of-the-box integration with enterprise resource planning systems, according to i2.

In addition, the company is building Web services support into the new applications. For users, that should speed up the process of developing data integration links between i2 Six and applications developed by other vendors, i2 officials said. The new software will also be able to exploit technologies such as Java 2 Enterprise Edition and XML.

Palash Chatterjee, president of solutions operations at i2, said the company's goal is to reduce the pain users feel when they install the applications and to speed up the returns on their investments.

"We believe if we can help the CIO reduce the total cost and then send some money back to the CEO, he can get some brownie points," he said.

For example, Chatterjee noted that a new tool kit coming with i2 Six is designed to help corporate developers more easily create integrated data and business process workflows. The tool kit includes a common data dictionary and a

set of workflow design mechanisms, he said.

Mitsubishi Caterpillar Forklift America Inc. is a beta tester that upgraded from Version 4.3 of i2's Factory Planner to i2 Six in November. Kent Hornbacher, manager of manufacturing materials

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Mitsubishi Caterpillar was also able to optimize its mod-

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The fact that i2 has developed an integrated system that supports high-velocity supply chain integration is of particular interest, said Dwight Klappich, an analyst at Metra Group Inc. in Stamford, Conn. But i2 will simultaneously support real-time data exchanges and the more typical batch processing, Klappich said. "A completely real-time supply chain is a dangerous thing," he said. "It would be anarchy."

### New in i2 Six

- A local Web interface to help users build information workflows
- Support for IEEE 802.1Q and Web services technology
- Enhanced demand management capabilities to give users real-time views of supply chains
- Industry-specific templates and simplified data integration tools

The upgraded applications are available now, said i2.

The company, which has reported five straight quarterly losses, in January acknowledged that the SEC had launched an informal inquiry into the accounting procedures it used in 2000 and 2001 [QuickLink Link 36004].

## Fidelity Installs SAN Management Tool

Company switches from homegrown provisioning app

BY LUCAS MEARIAN

Fidelity Investors this week plans to announce that it's rolling out a packaged storage-area network (SAN) management tool to replace an in-house application used to automatically provision storage space and charge business units for using the capacity.

For the past three months, Boston-based Fidelity has been working to install Inter-SAN Inc.'s Pathline 2.5 software at multiple data centers. Scotts Valley, Calif.-based Inter-SAN said it will formally announce that version this week the software includes features such as chargeback reports and automated reconfiguration of data paths.

Ken Ayotte, a systems architect at Fidelity, said the mutual fund company is using Pathline to help its IT central team

manage about 50% of a SAN with more than 200TB of data stored primarily on EMC Corp.'s Symmetrix disk arrays and IBM's Shark devices. By year's end, Fidelity plans to use the software to manage 100% of the networked storage, Ayotte added.

Fidelity has already been auto-provisioning its storage devices for the past 18 months with homegrown software; switching to a commercial application has let the company free up several systems architects who had been working to maintain the in-house technology, said Ayotte.

"For anybody who's got a team of architects, that's the last thing you want them doing full time," he said. "You want them looking out into the future and doing architect work." Ayotte declined to discuss how much Fidelity is spending to install the Path-

line software.

Storage administrators at Fidelity sometimes handle more than 100 provisioning requests per month, which can translate into hundreds of changes to the company's SAN. Ayotte said the IT department saved hundreds of man-hours on a monthly basis by moving from a manual provisioning model to the homegrown application.

Now the addition of Pathline is giving Fidelity the ability to tie available storage capacity on the SAN to specific applications and then provision the disk space for "an application instead of a server," Ayotte said.

Switching to the packaged software has also helped the company automate tasks such as storage inventory management, SAN performance monitoring and device configuration, he added. ▀

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● [QuickLink.x700.com/computerworld.com](http://QuickLink.x700.com/computerworld.com)



## BRIEFS

## Glitch Hits HMO's Rx Label System

Kaiser Permanente Health Plan Inc. said a systems glitch following a power outage may have caused labeling errors on prescriptions dispensed to about 4,700 of its patients on March 13. The Oakland, Calif.-based health maintenance organization added that it was conducting diagnostic testing to determine what happened. No adverse reactions have been reported thus far by patients, Kaiser said.

## Cisco Agrees to Buy Two Vendors

Cisco Systems Inc. announced deals to buy the Linksys Group Inc. in Irvine, Calif., and SignalWorks Inc. in Mountain View, Calif. Cisco will exchange stock that's currently valued at about \$560 million to acquire Linksys, which makes networking products for consumers. The company will use \$350 million worth of stock to buy SignalWorks, which develops IP telephony software.

## Publishing Firm Names New COO

The McGraw-Hill Co., a publisher and data provider in New York, said it has hired Meeta Patel, who was named one of *Computerworld's* Premier 100 IT Leaders in 2001, will report to McGraw-Hill's chief financial officer. He was previously COO at TRW Inc., an aerospace company that Northrop Grumman Corp. bought in December.

## Short Takes

SUN MICROSYSTEMS INC. released a set of tools for developing Java-based Web services applications that it's Sun ONE software. . . . HEWLETT-PACKARD CO. said it plans to offer full technical support for RED HAT INC.'s Enterprise Linux software to users of HP servers.

## i2 Looks to Simplify Supply Chain Software With Upgrade

New release includes vertical industry templates, support for Web services

BY MARC L. BONJOUR

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## Sun Server Exec Calls Linux a 'Friend'

BY JAIKUMAR VIJAYAN

In an interview this month, Nell Keen, executive vice president of Sun Microsystems Inc.'s volume systems product group, talked about blade servers, Linux support and the company's low-end server strategy.

How has Sun's new quarterly product-release schedule affected your low-end direction? I think it's no longer just a question of providing low-cost hardware. That's an old, single-element strategy. So this is where the design of the Sun Fire blade [server] platform really comes into play. We gave it a mix-and-match environment so that [users] can pick their architectures. If they want SPARC/Solaris or Solaris/x86 or Linux/x86 environments, they have that choice.

What is Sun's Linux strategy? It isn't a competitor to us; it's a friend. Anybody that buys or installs Linux means they're not buying [Windows]. I think you'll see us over a period of time go more and more to a general-purpose Linux environment.

That's why we announced the blades with the mix, match and manage environment for Solaris and Linux. Some people think we're not serious [about Linux]. But we are deadly serious.

Is Sun struggling over whether to push Solaris or Linux at the low end? Customers are coming to us and saying, "You've got to continue providing us with the environment that we have become used to on Solaris." On the other hand, they may also be deploying Linux somewhere else, and they want to be able to get that from Sun. I

don't believe we're struggling at all. I think we have a very simple and very effective architecture strategy.

What is driving Sun's low-end thrust after years of pushing high-end stuff? I'm on the second floor. Every time I hear this

question, I want to jump out of the window. Where do you think we came from? We were a low-end shop when we started. Yes, we were supersuccessful with the Cray acquisition, and we have introduced killer

[high-end] products. In the meantime, the little volume-server business has continued to be a major element in the company. I think our success at the high end has kind of overshadowed [that].

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## Canadian Credit Union Installs Wireless SAN Link

BY LUCAS MEARIAN

In one of the first projects of its kind, a Canadian credit union this month said it has set up a wireless IP network to

replicate banking data and other information from its primary data center to a disaster recovery site 32 miles away. Steinbach Credit Union Inc. in Stein-

bach, Manitoba, said it's saving \$70,000 (Canadian) per month by using the wireless setup instead of a leased virtual private network. Steinbach went live in February with the wireless link between the data center at its headquarters and a backup facility at a branch office in Winnipeg, Manitoba.

The credit union is using the wireless wide-area network to replicate customer data stored in Microsoft SQL Server databases, as well as loan origination information, other banking data, e-mail messages and streaming video from surveillance cameras. About 600GB of data is continually being updated between the two facilities.

Denis Van Dale, network administrator at Steinbach, said the company built three radio towers that are each more than 100 feet tall, bought four transmitters and installed new storage-area network (SAN) equipment for a total of about \$700,000 (Canadian). It also spent an unspecified amount of money on things such as planning and consulting services, he added. Steinbach expects to get a return on its investment within 20 months, Van Dale said.

The wireless connection offers full-duplex bandwidth of 700MB bit/sec., according to Van Dale. About 65MB bit/sec. is reserved for data replication, and the remainder is used for Internet connectivity, other data transfers and remote data sharing.

Steinbach installed multiprotocol switches made by Nishan Systems Inc. in San Jose to wrap Fibre Channel data packets in IP headers for transmission over the wireless network. Ethernet switches from Cisco Systems Inc. convert the data transmissions between 100MB bit/sec. speeds and the Gigabit Ethernet rates used inside the two data centers (see diagram).

Proxim Corp. in Sunnyvale, Calif., provided the wireless WAN bridging technology, which includes built-in data-scrambling capabilities for encrypting information. The switches and bridges link two disk arrays made by XIOtech Corp. in Eden Prairie, Minn. Steinbach also uses XIOtech's data replication software.

Robert Gray, an analyst at IDC in Framingham, Mass., said it's extremely rare for companies to use wireless links for data backup and disaster recovery purposes. Steinbach's installation shows how flexible IP networks can be, he said. But Gray added, such setups can "cause interference, degradation over distance or objects such as buildings and people in the path."

Earlier this month, Steinbach ran into transmission difficulties when a radio station at the University of Manitoba in Winnipeg began broadcasting on the frequency used by the credit union's WAN. That added to the WAN's data stream, sending bit levels above certain thresholds and causing network disconnects, Van Dale said. Proxim resolved the issue by adjusting Steinbach's frequency. ▶

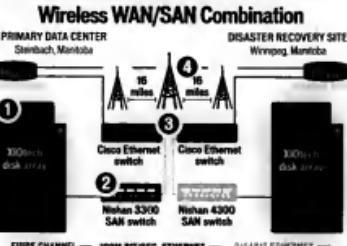
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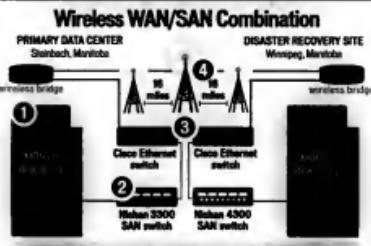
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PATRICIA KEEFE

# Backing Up ROI

**I**N THE FACE OF A WAR that's being launched as I write this, it seems trivial to talk about ROI. And yet, inside the halls of cash-crunching corporations nationwide, there's no greater battle cry.

You've read the articles, sat through the panel dis-

cussions and studied the methodologies (QuickLink #2340). You work it, you eat it, you dream it. But while ROI tops every project checklist and turns up in most project pitches, that's pretty much where it stays. Once a project is completed, few IT organizations go back and audit ROI expectations.

Figuring out what to put in those models — especially when working with major infrastructure projects that don't have an immediate ROI to speak of — and trying to cost-justify finished deployments when 10 other must-do projects await your attention are the missing parts of the ROI equation.

As Management editor Julia King so succinctly puts it, as much as CEOs and CFOs hammer away at IT to demonstrate ROI, IT is often powerless to do so without the business unit's help. And the business side? It doesn't have a clue how to translate improvements made possible by IT into any kind of IT-related ROI metrics.

The argument could be made that it's not the IT managers who need executive education to learn how to demonstrate ROI and come up with metrics; it's the middle managers and heads of the business units.

Take Ascential Software Corp.'s customer advisory board, which is made up of its 13 largest customers — companies like General Motors, McKesson, DHL and New York Life. How to calculate the ROI at the end of projects and where to go for help were hot topics at the



board's recent meeting. The board members were pretty clear about what they need: They need the business units to commit to the ROI up-front and to include the ongoing costs of support and maintenance in those calculations. Interestingly, they want Ascential's strategic vendors to lend a hand as well, especially in those cases where the ROI is intangible.

These ROI postmortems are important. ROI models are, after all, expectations, not exact compass headings. Testing those assumptions can help wring out inefficiencies. The information gained can become part of the collective knowledge that's used to support and inform future project planning. This benefits everyone.

But none of this can be accomplished unless the business units — which these days are often the ones funding the projects — are held accountable for the bets they place on these capital investments. As one Ascential customer notes, "Business owners have . . . to accept some responsibility for executing on the new data and achieving some business impact."

If upper management is really serious about wanting to infuse IT projects with more economic justification, it must mandate the cooperation that IT needs to produce and support those ROI numbers. The whole exercise has to be built on a shared understanding of the costs and benefits that the business unit will extract from the IT investment, says IT management consultant and Computerworld columnist John Berry (QuickLink #3000).

I think Ascential's advisory council is onto something. As Berry says, this kind of teamwork should happen if IT is the fabric of the business. "All these islands of responsibility, prerogative and control simply can't exist in a well-functioning organization where there is the need and desire for economic value out of the IT investment." Amen to that. ▶



PIMM FOX

# P2P for Grown-ups

**I**T'S EASY to understand why peer-to-peer computing gets overlooked in the enterprise. It's viewed primarily as a way to use disparate resources, but with loads of extra security and management hassles.

Yet P2P is more than kids swapping bootlegged music on Napster. Inside the enterprise, P2P can encompass collaboration and communication to and from any networked device, anywhere. And now P2P tools are maturing to a point where you can kilt together your network without eliminating safeguards and supervision. For example, Sun Microsystems' open-source P2P technology, dubbed JXTA, is a development standard capable of supporting initiatives for laptops, cell phones, PDAs and just about any digital device or sensor.

JXTA eliminates interoperability roadblocks. That means that adding chat or directory look-up features to different devices doesn't require a rewrite of code. By offering standard protocols, JXTA makes possible a P2P community whose members might — if they're thoughtful enough — create a development environment that crosses languages and devices. There are already JXTA implementations in C, Java, Perl, Python and C# for .Net that let you do device or service discovery. More are needed.

I think there are three areas in which P2P might be used inside companies. The first is in content-delivery networks. Rather than making a call on a central server for each query, it may be faster and cheaper to fetch data from a device that's already cached the information. Why go to a central server to view the CEO's media presentation when you can get it from someone in your department who has already viewed it?

Second, a class of real-time collaboration and groupware applications





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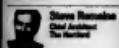
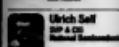
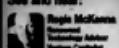
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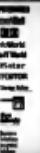
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## Witness User Case Studies



## Hear from Industry Leaders



## Agenda Snapshot\*

For details, updates, and to register visit [www.srwusa.com/regs](http://www.srwusa.com/regs)

### Monday, April 14

#### (Pre-Conference Activity and Tutorial Sessions)

9:30am-11:00am	Power
11:00am-12:00pm	Storage
12:00pm-2:00pm	Network
2:30pm-4:30pm	SPRS Tutorial Sessions ↳ chosen from five different sessions
2:30pm-4:30pm	SPRS Tutorial Sessions ↳ chosen from five different sessions
3:30pm-4:30pm	SPRS Tutorial Sessions ↳ chosen from five different sessions
3:30pm-4:30pm	SPRS Tutorial Sessions ↳ chosen from five different sessions
4:30pm-6:30pm	SPRS Tutorial Sessions ↳ chosen from five different sessions
4:30pm-6:30pm	SPRS Tutorial Sessions ↳ chosen from five different sessions
7:00pm-9:00pm	Pre-Conference Networking Reception

### Tuesday, April 15

#### (General Conference - Day One)

7:30am-8:30am	Continental Breakfast
8:30am-9:00am	General Session: Greg McNamee ↳ chosen from five different sessions
9:00am-12:00pm	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos
12:00pm-1:00pm	Networking Luncheon
1:00pm-2:00pm	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos
2:00pm-3:00pm	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos
3:00pm-4:30pm	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos

### Wednesday, April 16

#### (General Conference - Day Two)

7:30am-8:30am	Continental Breakfast
8:30am-9:00am	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos
9:00am-10:00am	General Sessions
10:00am-11:00am	General Sessions

### Thursday, April 17

#### (General Conference - Day Three)

8:30am-11:00am	Continental Breakfast
11:00am-12:00pm	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos
12:00pm-1:00pm	General Sessions
1:00pm-2:00pm	General Sessions

### Friday, April 18

#### (General Conference - Day Four)

8:30am-9:00am	Continental Breakfast
9:00am-10:00am	Technical Sessions: Marketing, Licensing, Technical, Technical/Business and Solutions Demos
10:00am-11:00am	General Sessions

## Register Today!

### Options for IT End-Users\*

	Pre-Registration (through April 16)	On-Site Registration (after April 16)
General Conference Package (Apr. 15, 16)	\$1,095	\$1,245
General Conference Package (Apr. 15, 16, 17)	\$1,495	\$1,695
Total 4-day Package (Apr. 15, 16, 17) (Includes General Conference Package, Technical and Business Tracks, SRA-Produced Tutorials, SRA-Certified "Test Ready" Courses, Each Month and Resources)	\$4,980	\$5,695

### Options for IT Vendors\*\*

	Total 4-day Package (Apr. 15, 16, 17)	On-Site Registration (after April 16)
Available to Sponsoring Vendors and their Resellers/Integrators, Industry Consultants, and Strategic Solutions Implementors	\$1,495	\$1,695
Non-Sponsoring/Exhibiting Vendor Package	\$5,000	\$5,000

\* See IT End-User Information on the Registration Application for terms. \*\* See Non-Sponsoring Vendor description on the Registration Application for terms.

## Travel and Accommodations

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## Pre-Conference Golf Outing

### Complimentary for Registered IT Users

The Atlanta Golf Club is the host of the Pre-Conference Golf Outing. The Pre-Conference Golf Outing is complimentary (\$100 value) for registered IT users. Non-IT users may register for the Pre-Conference Golf Outing for \$100 per person. Non-IT users must be registered for the Pre-Conference Golf Outing to receive the complimentary registration.



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makes it possible to share files, invite new members and create new workspaces easily on the fly. People should be able to work on the same diagram, chat in real time and engage their peers remotely without added stress to IT infrastructure.

Finally — and this is still more hope than reality — a good P2P architecture should let wireless encrypted data flow back and forth between mobile users for things such as group e-mail lists, phone directories and schedules. Changes can be synced when one user gets tethered to the central nervous system.

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Perhaps this will spur some P2P creativity. ▶

DANIEL J. WEITZNER

## The DMCA Jury Is In

LEGISLATORS, Hollywood lobbyists, IT industry heavyweights and law professors have been battling over how copyright law should apply to the Internet. While these mighty forces struggle over what the legal and technical landscape should look like, we may learn something about that future from what happened when a jury weighed in on the practical boundaries of copyright law.

High-stakes lobbying and court battles brought us a law called the Digital Millennium Copyright Act (DMCA), which both extends copyright protection to digital works and makes it a crime to use or distribute tools that help to break the copyright protection of digital works. These "anticircumvention" provisions have been controversial both with civil liberties advocates, who see them as restricting free speech, and with some people in the computer industry, who worry that they will regulate out of existence basic system functions such as cut and paste. The debate is far from over, but whatever the result, it will certainly have a fundamental impact on the kinds of computing tools

available to the enterprise.

The technology for anti-circumvention has also been quite controversial. Should computing platforms in the enterprise and the home be built to assure that it's impossible to copy documents, songs or images unless we have the explicit permission of the copyright holder? While this might help reduce the widespread infringement of music files, what effect would it have on the flexibility of basic enterprise computing? How about the free flow of information — the driving engine of the Internet and the key to productivity improvements brought about by network computing?

Still, if computers don't enforce copyrights on digital works, will the entertainment industry suffer irreversibly?

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tentious question. They were asked whether software that breaks eBook copy protection codes violates the DMCA. In considering criminal charges leveled against a Russian software company that makes software to break the copy protection built into eBooks, the jury, in a federal court in San Jose, found that the software isn't criminal because there are legitimate reasons to allow users to make copies of information in eBook format. In the view of this jury, at least, it's not right to impose restrictive tools on all users just to catch a few lawbreakers.

This decision calls into question the tough provisions enacted by legislators all around the world. Ordinary folks, it seems, are much less inclined to throw people in jail in order to assure copyright holders that their works will be perfectly secure on the Internet.

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The Dale  
Clockmaz, Ore.

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but still considerably lower than in major metro areas. This has been done in a handful of places in the U.S. One of the most recent examples is Washington's Center to Bridge the Digital Divide and its rural network program at Washington State University. This kind of program keeps the work, incomes and still development in the U.S., achieves cost savings and helps insulate U.S. employers from the risks that are part of any international business dealings with developing countries.

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President, Gil Gordon Associates, Monmouth Junction, N.J.  
gil@gilgordon.com

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Besides, if no one ever sees the people and everything is working fine, people will start to wonder why they're paying so much for it when it doesn't look like we do anything.

Jerry Simon  
IT manager, New York

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More letters on these and other topics are on our Web site: [computerworld.com/letters](http://computerworld.com/letters)

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This decision calls into question the tough provisions enacted by legislators all around the world. Ordinary folks, it seems, are much less inclined to throw people in jail in order to assure copyright holders that their works will be perfectly secure on the Internet.

Whether or not you agree with the jury's view, it does suggest that it's time to rethink the heavy-duty lock-and-key approach that many digital rights management systems are taking to protecting copyrighted works.

The dramatic rise (and fall) of services like Napster have focused law-making and technical attention on the 15-year-old who may care more about getting the latest music than the virtues of copyright. But in building systems designed to lock out the types of teenagers, we've forgotten the vast majority of users, especially in the commercial and academic worlds, who respect copyright law.

Although in some cases heavy-duty technologies are in order, in this case perhaps the jury was right. We need technology to make it easier for law-abiding users to respect copyright, not more heavy-handed protection in general-purpose computing platforms. ■

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**Saving Face**  
 FANK HANES hit the nail on the head regarding the amount of IT

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# TECHNOLOGY

03.24.03

## HANDS-ON REVIEWS

### Microsoft's Suite Dreams

The enhancements to Outlook are enough to make IT managers consider an upgrade to Office 2003, and there are plenty of other new and improved features in the suite, says reviewer Russell Kay. [Page 30](#)

## FUTURE WATCH

### Smart Dust

Tiny wireless sensors that can detect everything from light to vibrations could change manufacturing, medicine and even the military. [Page 32](#)

## SECURITY MANAGER'S JOURNAL

### Insecure Servers

### Suffer Image Problem

A good security policy and solid technology fail to protect servers when administrators take shortcuts around carefully designed procedures for updating them. [Page 34](#)



**The key to successful self-service applications is understanding exactly what users need and building in flexibility for change.**  
By Robert L. Scheier

## SELF-SERVICE

**W**HEN WEB-BASED self-service is good, it's really good. Customer satisfaction soars and call center costs plummet as customers answer their own questions, enter their own credit card numbers and change their own passwords without expensive live help.

But when Web-based self-service is bad, it's really bad. Frustrated customers click to a competitor's site or dial up your call center — meaning you've paid for both a self-service Web site and for a call center, and the customer is still unhappy.

Greeting self-service users with a confusing menu of options or asking them questions they can't answer is a sure way to force them to call a help center. For example, when AT&T Wireless Services Inc. began rolling out its new high-bandwidth wireless networks, its self-service Web site required customers to say whether their phones used the older Time Division Multiple Access (TDMA) network or the newer, third-generation network. Most people didn't know which network they used, only which calling plan they had signed up for, says Scott Cantrell, e-business IT program manager at AT&T Wireless. So AT&T redesigned the site so the customer just enters his user ID and password, "and the application automatically sends you to the right [Web] site," Cantrell says.

According to Gartner Inc., more than a third of all customers or users who initiate queries over the Web eventually end up calling to get their questions answered. And although health insurers have built out self-service applications to help policyholders with claims questions, the "great, great majority" of transactions still go through a call center, says John Di Stefano, national leader of IT solutions in Cap Gemini Ernst & Young's payor practice.

Whether a self-service application is aimed at external customers or internal users such as employees, the keys to success remain the same: understanding where self-service can save the most money, building flexibility into application interfaces and business rules so the site can be changed as needed, and setting aside money and time for maintaining the site.

Knowing which problems generate calls to expensive staffers is the first step to finding out where the greatest potential savings lie and which costly integration work is worth doing, according to

*Continued on page 28*

# Know Thy Customer

Boss in China. File in Chicago.

### Managing collaboration

That's a challenge.

Is that all of those issues? Or, perhaps, all of them? We thought so. Many of these issues can be related to your legacy desktop software; fortunately, many of them can be addressed by features in Microsoft® Word® XP Professional and Office XP Professional. Want specific



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examples? Windows XP Professional offers built-in audio and video-conferencing capabilities that make the whole experience easy and intuitive for your audience. With the Send for Review feature, Office XP Professional lets you easily assign roles to everyone involved in the document review

cycle, while automatically providing the correct tools for each reviewer and allowing changes to be easily merged back into the original document. And finally, server-based deployment is easier than ever. For more ideas about managing your desktop, visit [microsoft.com/desktop](http://microsoft.com/desktop)

Continued from page 26

Forrester Research Inc. analyst Bruce Temkin, Syracuse University in New York, for example, held public forums on the topic in the spring of 2001 before giving students online access to information such as class schedules and the status of tuition payments, says Gary McGinnis, director of client services at the university's computing and media services department.

Companies can learn a lot about customer needs by analyzing calls coming into their call centers, says Temkin, such as how many times customers call to dispute a single phone call on their bills vs. how many times they call because they don't understand their bills. Most call center software can gather and present such information. Temkin recommends creating very precise categories to "tag" different calls to provide a detailed view.

The more complex the transaction, the more expensive the integration. To let customers change charges online, says Temkin, a provider must jointly link its billing system, a phone number look-up system to determine the actual recipient of a diagnostic call, and a rules-based system to evaluate the customer's claim. Since you may lose any savings if the Web customer winds up calling, says Temkin, "you might as well not bother going down the integration path if you're not going to provide all the pieces required to make that a self-service environment."

Before moving to the Oracle suite of business applications in 2001, McGinnis Corp. estimated that it would take six weeks to load, clean and test the data from its legacy applications, says Debra Morton, director of business systems at the Broomfield, Colo., direct-store-delivery vendor. "It ended up taking more like three months and four times the amount budgeted, because we had so many sources of information," she says.

Rather than buying or building a separate self-service application, McGinnis relied on Oracle Corp.'s business application suite. Using the self-service capabilities within an existing product suite reduces the need for integrating applications, which has down-

bled or tripled the cost of some application efforts Morton has seen.

McData is implementing self-service capabilities so its suppliers can get up-to-the-minute forecasts of its manufacturing plans. The company is also automating customer support for its software products.

Companies that build their own interfaces among applications often find that they're not secure or don't scale well, say analysts. "Many of our new customers over the last year or so are replacing homegrown systems that couldn't scale," says Ted Morgan, vice president of marketing at Edocs Inc. in Natick, Mass.

When AT&T Wireless built a self-service site for its TDMA-based wireless technology, it used the DynaWeb Web application suite from Art Technology Group Inc. in Cambridge, Mass., as well as Edocs' software to give customers access in billing information, says Cannell. The company had to develop its own interfaces to the eight to 10 back-end systems that feed information to the Web application.

In building self-service capabilities for its latest high-speed wireless services, AT&T Wireless will use Siebel Systems' customer relationship management (CRM) software, which wasn't in production when the company built earlier self-service sites.

### Embedding Business Rules

Developers must also find a way to embed business rules into their Web self-service environments. Often, as many as half of those rules have never been written down, says Edocs product manager David Chang. To find those missing rules, Edocs gathers experts from throughout a company to walk through processes such as changing an order.

Hand-coding business rules by writing them into the Web application may be easiest in the short run, but it makes the rules harder to change, says Andrew Kass, vice president of application development at Oracle. Instead, analysts and self-service vendors recommend encapsulating business logic in reusable application components so rules can be changed

## Justifying the Cost

**WHEN DONE RIGHT**, self-service Web applications can reduce call center staffing, save on the cost of printing, mailing and handling bills, earn a company volume discounts, and improve customer satisfaction.

Without disclosing specifics, AT&T Wireless spokesman Rich Blum says that the company is saving "several million dollars per year" in return calls to its call center, and that it has reduced the number of customers who switch to different carriers.

Network storage vendor McData has seen a 170% return on its \$35.6 million investment in Oracle's business applications, which include employee self-service, says Debra Morton, director of business systems. She estimates that McData is saving \$1 million to \$5 million per year because improved purchasing tracking qualifies McData for greater volume discounts and eliminates duplicate purchasing.

But remember to factor in the cost of publicizing your site when calculating ROI, say veterans. "The reason folks like American Express and AT&T Wireless have millions of people at their site is because they actively promote it," says Ted Morgan, vice president of marketing at Edocs.

—Robert L. Scheer

without every application that uses them having to be rewritten.

To ensure that customer data is current across multiple channels (such as the self-service application and the call center), many customers are turning to operational data stores, says Cap Gemini Ernst & Young's Di Stefano. The information in them might be 15 minutes to one hour old, he says, which is recent enough to ensure consistency. Another approach taken by vendors like Edocs is using data cataloging to help the self-service application find data that's still in transactional systems.

Continually updating the knowledge base of correct answers to customer questions can be one of the largest hidden expenses of self-service applications. Temkin recommends monitoring call center personnel and providing incentives to encourage them to make these updates clear and understandable.

There is no single tool that can provide end-to-end Web self-service for every company that needs it, according to analysts. Syracuse University, for example, turned to Business Layers Inc., a provider of provisioning software in Rochelle Park, N.J., to provide a directory and a single source of authentication that would let students sign on once to gain access to any online resources. But the Web portal itself, and the links to its school's PeopleSoft applications, were developed by a consortium of vendors and customers.

Whatever tools you use, "take a more holistic view of the world" when designing your self-service site, says Cannell. "It's easy to say we're focusing on having the customer change a [specific] feature over the Web, but says, but it's more important to build in flexibility so customers can help themselves to any other service AT&T offers in the future."

## Some Self-service Offerings

VENDOR	PRODUCT	DESCRIPTION
Business Layers Inc.	eProcess	A single source for identifying users and providing them with digital and physical resources such as e-mail accounts and PCs. A stand-alone self-service password reset application also is available.
Edocs	edocs self-service platform	Uses catalog and middleware technologies to gather data from legacy systems and update its knowledge base.
Kayenta	Kayenta 4.0	Provides self-service applications for Web and internal users.
Oracle Corp.	Self-service modules within its business applications	Includes self-service capabilities for human resources, expense reporting and procurement.
PeopleSoft	PeopleSoft modules within its CRM suite	PeopleSoft Multichannel Interactions delivers e-mail response management and chat. PeopleSoft Order Capture Self-Service lets customers place and check the status of orders over the Web.
Pronto Knowledge Solutions Inc.	Self-Service Console and eSupport for Web self-service; Quick Response for customer service agents	Based on the Answer Engine search tool and eService knowledge base.
Siebel Systems Inc.	eService Suite	Includes eService Site for Web-based customer self-service; eService Professional for customer service, sales and field service, and eService Archivist for building and maintaining knowledge bases.
Siebel Systems Inc.	Global Services	A Web-based portal.

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Continued from page 25

Forrester Research Inc. analyst Bruce Temkin. Syracuse University in New York, for example, held public forums on the topic in the spring of 2001 before giving students online access to information such as class schedules and the status of tuition payments, says Gary McGinnis, director of client services at the university's computing and media services department.

Companies can learn a lot about customer needs by analyzing calls coming into their call centers, says Temkin, such as how many times customers call to dispute a single phone call on their bills vs. how many times they call because they don't understand their bills. Most call center software can gather and present such information. Temkin recommends creating very precise categories to "tag" different calls to provide a detailed view.

The more complex the transaction is, the more expensive the integration. To let customers challenge charges online, says Temkin, a wireless provider must supply links to its billing system, a phone number look-up system to determine the actual recipient of a disputed call, and a rules-based system to evaluate the customer's claim. Since you may lose any savings if the Web customer winds up calling, he says, "you might as well not bother going down the integration path if you're not going to integrate all the pieces required to make that a self-service environment."

Before moving to the Oracle suite of business applications in 2001, McDodata Corp. estimated that it would take six weeks to load, clean and test the data from its legacy applications, says Debra Morton, director of business systems at the Broomfield, Colo.-based storage vendor. "It ended up taking more like three months and four times the amount budgeted, because we had so many sources of information," she says.

Rather than buying or building a separate self-service application, McDodata relied on Oracle Corp.'s business application suite. Using the self-service capabilities within an existing product suite reduces the need for integrating applications, which has dou-

bled or tripled the cost of some application efforts Morton has seen.

McData is implementing self-service capabilities so its suppliers can get up-to-the-minute forecasts of its manufacturing plans. The company is also automating customer support for its software products.

Companies that build their own interfaces among applications often find that they're not secure or don't scale well, say analysts. "Many of our new customers over the last year or so are replacing homegrown systems that couldn't scale," says Ted Morgan, vice president of marketing at Edocs Inc. in Natick, Mass.

When AT&T Wireless built a self-service site for its TDMA-based wireless technology, it used the Dyna Web application suite from Art Technology Group Inc. in Cambridge, Mass., as well as Edocs' eaDirect to give customers access to billing information, says Cannell. The company had to develop its own interfaces to the eight to 10 back-end systems that feed information to the Web application.

In building self-service capabilities for its latest high-speed wireless services, AT&T Wireless will use Siebel Systems Inc. customer relationship management (CRM) software, which wasn't in production when the company built earlier self-service sites.

### Embedding Business Rules

Developers must also find a way to embed business rules into their Web self-service environments. Often, as many as half of those rules have never been written down, says Edocs product manager David Chang. To find those missing rules, Edocs gathers experts from throughout a company to walk through processes such as changing an order.

Hard-coding business rules by writing them into the Web application may be easiest in the short run, but it makes the rules harder to change, says Andrew Kass, vice president of application development at Oracle. Instead, analysts and self-service vendors recommend encapsulating business logic in reusable application components so rules can be changed



without every application that uses them having to be rewritten.

To ensure that customer data is current across multiple channels (such as the self-service application and the call center), many customers are turning to operational data stores, says Cap Gemini Ernst & Young's Di Stefano. The information in them might be 15 minutes to an hour old, he says, which is recent enough to ensure consistency. Another approach taken by vendors like Edocs is using data cataloging to help the self-service application find data that's still in transactional systems.

Continually updating the knowledge base of correct answers to customer questions can be one of the largest hidden expenses of self-service applications. Temkin recommends monitoring call center personnel and providing incentives to encourage them to make their updates clear and understandable.

There is no single tool that can provide end-to-end Web self-service for every company that needs it, according to analysts. Syracuse University, for example, turned to Business Layers Inc., a provider of provisioning software in Rochelle Park, NJ, to provide a directory and a single source of authentication that would let students sign on once to gain access to any online resources. But the Web portal itself, and the links to the school's PeopleSoft applications, were developed by a consortium of vendors and customers.

Whichever tools you use, "take a more holistic view of the world" when designing your self-service site, says Cannell. "It's easy to say we're focusing on having the customer change a [specific] feature over the Web, he says, but it's more important to build in flexibility so customers can help themselves to any other service AT&T offers in the future. ♦

*Schriener is a freelance writer in Boylston, Mass. He can be reached at schriener@charter.net.*

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		User-cataloging and middleware technologies to gather data from legacy systems and update the knowledge base.
		Provides self-service applications for Web and external users.
		Includes self-service capabilities for human services, expense reporting and procurement.
		PeopleSoft Multichannel Interactions delivers e-mail response management and chat. PeopleSoft Order Capture Self-Service lets customers place and check the status of orders over the Web. Based on the Answer Engine search tool and eServer knowledge base.
		Includes eService Site for Web-based customer self-service; eService Professional for customer service, sales and field service; and eService Architect for building and maintaining knowledge bases. A Web service portal.



# Microsoft's Suite Dreams

**Office 2003 has enough new features and improvements to tempt users, despite the cost of an upgrade. By Russell Kay**

**L**T'S 2003, AND MICROSOFT Corp. is getting ready to roll out its approximately biennial upgrade to Office, causing IT managers to ask themselves, one more time, whether they should (or indeed whether they can afford to) upgrade. Such an upgrade is never simple or cheap for enterprise IT. In the past, there have been serious downfalls, such as when Microsoft changed the basic file formats and created incompatibility headaches for users who hadn't been switched over. And inevitably there are issues with training and support.

This time around, with Office 2003 (apparently, that "XP" nomenclature caused more problems than it solved), Microsoft is concentrating on expanding the envelope with new tools aimed at better collaboration among people.

I've been working with beta copies of the new software, and IT departments should seriously consider this upgrade. Even if you decide not to upgrade the suite, remember that the component applications of Office are available as stand-alone products. There may be good reason to upgrade individual applications — Outlook in particular — and perhaps add new ones.

## Ongoing Evolution

Created by Microsoft in 1989, the office suite concept has proved to be a clever marketing device. By packaging a few basic applications in a single box, Mi-

crosoft sold a lot of software because it offered a convenient way for users and businesses to get most of what they needed for word processing, spreadsheets, presentation graphics and simple databases.

Over many generations of development, these applications improved individually, worked better together and got bigger — lots bigger. Microsoft has steadily added applications — Visio, Publisher, MapPoint, Project and FrontPage — to the original "core" set, with the developing goal of making Office a platform for workplace collaboration and communication. (There's a timeline detailing the evolution of the Office suite at [QuickLink.a29900.on Computerworld.com](http://QuickLink.a29900.on Computerworld.com).)

With Office 2003, Microsoft has taken the biggest leap yet. It has made XML a standard file format for most applications and has launched two applications — InfoPath (formerly known

as XDocs and NetDocs) and OneNote (née Scribbler) — that offer new capabilities in the areas of forms, intelligent documents, note-taking and research.

Enterprise IT will want to investigate the new information rights management (IRM) controls debuting with Office 2003. This file-level security capability, which can be used only with Windows Server 2003, makes it easier for document owners to restrict access and change rights to specific content inside Office documents and e-mails.

For example, users can put expiration dates on messages and documents, and after those dates have passed, others wouldn't be able to read the documents without special permissions. Users can also make documents read-only, nonforwardable and nonprintable. After expiration, the documents still reside on the server or remote user's PC, but in encrypted form. A free

IRM viewer will be available to users of older Office versions who need to work with IRM-protected documents.

What about Office's core applications: Word, Excel, PowerPoint, Access and Outlook? All but the last include minor changes and improvements, but basically they're mature applications that haven't shown much need for new capabilities. One noteworthy addition to Word is a nice viewing mode specifically for reading documents on-screen. And a useful new feature that all Office applications share is a research task pane for performing information and Internet searches. This task pane can be shared with a workgroup. Beyond that, there's little new in the four primary applications to cause IT managers much concern — or spark much interest, for that matter.

Outlook is the big exception. It has been significantly overhauled and is now the productive and useful e-mail client and personal information manager it always should have been.

## A Brighter Outlook

The new version of Outlook is drastically improved e-mail client. Microsoft has tweaked the user interface to put more information on-screen, make mail easier to read and let you organize your mail much more simply and quickly than before. If yours is an Exchange shop, your users will benefit greatly from using the new Outlook client; so even if you plan to stick with an older version of Office, you should consider buying Outlook 2003 separately. A Microsoft project manager says the interface for Outlook Web Access will be similarly changed to add the new capabilities.

On this new user interface (see left screenshot in diagram), the simplest change was putting the preview/reading pane on the right instead of at the bottom. This eliminates white space in

## HANDS-ON REVIEWS





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The neatest feature in the new Outlook may be the "search folders," which quickly bring you to, for example, all unread mail regardless of what folder it's in, all items flagged for follow-up or very large files. It's easy to make new search folders to meet other needs.

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One appealing touch is the way Outlook announces new messages. If

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Of the new applications, OneNote is a valuable addition that will be especially useful for most knowledge workers and researchers. InfoPath is a more specialized form-based application that will require significant IT participation to implement, but it may expand data-gathering capabilities for many enterprises.

Every part of Office 2003 is more XML-aware and better suited to content mining and data interchange. But whether that makes the entire suite an attractive package depends on your company's needs. However, OneNote and Outlook are clear winners that everyone should look at. ▶

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#### OFFICE EXPANSIONS

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**QuickLink 37079**

[www.computerworld.com](http://www.computerworld.com)

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**THE MOST INTERESTING NEW MEMBER** of the Office family is OneNote, an application designed for taking notes and doing research, as well as organizing, accessing, reusing and sharing free-form information from a variety of sources and in diverse formats. Unlike, say, Word, where the expected goal is a finished document, OneNote is intended as a preliminary tool for taking rough notes and assembling content from a variety of sources and in a variety of formats, including sound, graphics and Web-based information.

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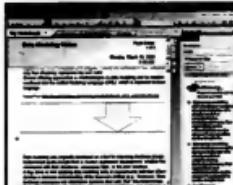
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More XML-aware applications  
Streamlined new Outlook e-mail client  
Shared calendars and address books with Exchange  
Improved spam filtering  
OneNote, a new addition to the suite, is a handy and productive tool  
Word's reading mode is a useful addition

Less  
Inevitably, some retasking is necessary  
Not every feature for core applications includes Outlook

Highlights on rights management tools for enforcing access to content  
Blocking of external content such as pictures from e-mail

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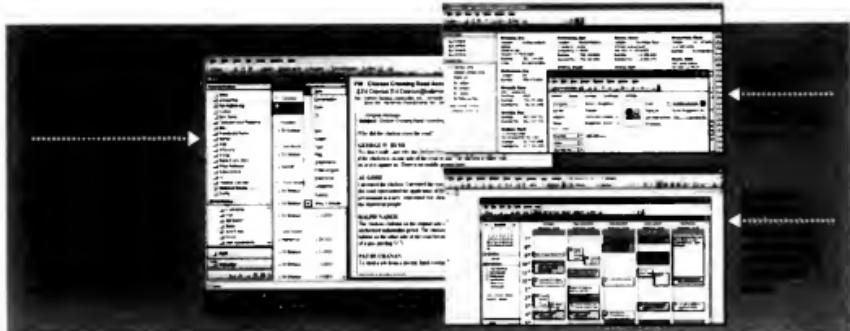
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**P**ICTURE being able to scatter hundreds of tiny sensors around a building to monitor temperature or humidity. Or deploying, like pine dust, a network of microscale, remote sensor chips to track enemy movements in a military operation.

"Smart dust" devices are tiny wireless microelectromechanical sensors (MEMS) that can detect everything from light to vibrations. Thanks to recent breakthroughs in silicon and fabrication techniques, these "motes" could eventually be the size of a grain of sand, though each would contain sensors, computing circuits, bidirectional wireless communications technology and a power supply. Motes would gather seeds of data, run computations and communicate that information using two-way band radio between motes at distances approaching 1,000 feet.

Potential commercial applications are varied, ranging from catching manufacturing defects by sensing out-of-range vibrations in industrial equipment to tracking patient movements in a hospital room.

#### Design Impasse

Still, for all the promise, there are a number of technical obstacles to widespread commercial adoption. For instance, researchers are wrestling with design challenges in fusing MEMS and electronics onto a single chip, says Gary Fedder, associate professor of electrical and computer engineering and robotics at Carnegie Mellon University in Pittsburgh.

Fedder, a co-founder of Carnegie Mellon's MEMS Laboratory, has been trying to tackle these development issues through new fabrication and design techniques, but he acknowledges that the lab has quite a bit of work ahead of it.

"The paradigm has been to have a



## Multifunctional Mote

The goal of the smart-dust project at UC Berkeley is to build self-contained, millimeter-scale devices that include sensors, computational ability, bidirectional wireless communications technology and a power supply, while being inexpensive enough to be deployed by the hundreds.

single engineer be the champion of these systems and fuse it all together to make a [single] chip. That requires a superhuman effort," says Fedder. The lab has been developing design tool technology to aid the engineers who may ultimately design these kinds of systems, he says.

What makes all this effort worthwhile is a growing feeling among researchers that these technologies may eventually have a huge impact on society. That also helps explain why the Defense Advanced Research Projects Agency began funding aspects of this work at the University of California, Berkeley, in 1998.

The goal for researchers is to get these chips down to 1mm on a side. Current motes are about 5mm, says Kristofer Pister, professor of electrical engineering at UC Berkeley, who's been

working with smart dust since 1997. Pister is on sabbatical from the university until early 2004 at DaimlerChrysler, a Berkeley-based developer of peer-to-peer wireless sensor networks. Dust's charter is to give developers hardware and software interfaces that are stable, reliable and low cost," he says.

The cost of motes has been dropping steadily. Prices range from \$50 to \$100 each today, and Pister anticipates that they will fall to \$1 within five years.

He sees a plethora of potential commercial applications for smart dust, including serving as traffic sensors in congested urban areas and monitoring the power consumption of household appliances to determine whether they're operating at peak efficiency.

Pister and others are quick to point out that the size of these microchips presents thermal power supply challenges. Ideally, researchers and

commercial contractors want to be able to deploy wireless motes that aren't tethered to power sources, and many of the systems being tested or in use today rely on miniature battery power.

"You've got this limited pile of energy in your battery, and you need to distribute that out and make it last," says Mike Hanson, CEO of Crossbow Technology Inc., a San Jose-based maker of MEMS technologies whose customers include a cosmetics company that uses wireless sensors to gauge humidity levels in its warehouses for moisture-sensitive products. "You can plug it into the wall, but that kind of defeats the purpose of these autonomous sensors."

#### Breakthroughs Expected

Researchers are attacking the problem in by focusing on so-called low-power ad-hoc routing protocols, which figure out how to get a message from one mote to another using the least amount of energy. Research on this kind of power has been emerging over the past two years at UC Berkeley, MIT and the University of California, Los Angeles.

"We haven't found a one-size-fits-all approach yet," Horton says. Still, he believes two near-term technical breakthroughs for these wireless sensors in the areas of power and size are poised to occur. The first involves paring the various semiconductors needed today to operate these motes down to a single semiconductor, a development Horton foresees occurring about two years from now.

On the power side, Horton points to research by UC Berkeley's Shad Roundy on fuel cells that can "scavenge" energy to make smart-dust devices run longer. This includes drawing off the ambient vibration energy generated by an industrial machine or gathering energy from low levels of light. These scavenger energy technologies might be five years off, Horton says.

While researchers and commercial developers are agog over the potential applications for smart dust, they're also careful to point out the design and power issues that still need to be resolved. Says Fedder, "There are a lot of people champing at the bit to commercialize this technology, but the technology still has to mature, and widespread use is still several years off."

## FUTURE WATCH

For more about smart dust, go online to [www.computerworld.com](http://www.computerworld.com) and click on **Checklist 36044**.

# SmartDust

Mighty motes for medicine, manufacturing, the military and more.  
By Thomas Hoffman

#### GET THE DIRT ON DUST

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# Insecure Servers Suffer Image Problem

**A routine security assessment shows that secure baseline images must be up to date or server administrators will ignore them.**

By Mathias Thurman

**T**HIS WEEK, I conducted a quick, routine vulnerability assessment of a sample of our production environment. I wasn't pleased with the results.

Ongoing vulnerability assessments are critical in determining my company's security posture at any given time.

My methodology is fairly straightforward. I use a combination of three scanning tools: Internet Scanner from Internet Security Systems Inc. in Atlanta, Retina Network Scanner from eEye Digital Security in Aliso Viejo, Calif., and Nessus, a free network scanner available at [www.nessus.org](http://www.nessus.org). With these powerful tools, I can get a comprehensive view of our IT infrastructure's vulnerabilities. I'm not suggesting that this method discovers 100% of all possible problems, but it gets close. And our other activities, such as application-level assessments, architecture reviews and code reviews, get us even closer.

All three tools are simple to use and can scan from a pre-configured list of IP addresses. For my assessment, I selected a sample from each functional area. For example, I picked Web servers, database servers, application servers, e-mail servers, Domain Name System servers, Lightweight Directory Access Protocol servers, domain controllers and a few firewalls, routers and network switches. I used the Windows Notepad applet to create a CSV file and entered about 40 IP addresses into the list.

We have more than 300 servers in our production environment, but I scanned only 40 of them. I don't have time to assess and review every server, and I shouldn't have to do so, since all servers for a given function are identically configured. Or so I thought.

To achieve consistency, server administrators are supposed to use a standard jump-start image and then run postinstall scripts that install additional software and make security modifications, depending on the server's function. Our administrators are supposed to maintain and use these images whenever they build a new system, so an assessment of one type of resource should yield the same result for every server.

My assessment included five Oracle database servers, three of which had serious security holes. For example, one server was running a vulnerable version of the Secure Shell (SSH) program. Our current baseline includes the most current version of SSH, so unless someone had downgraded the current version, that Oracle

server hadn't been built using the standard baseline image. To my surprise, many other servers weren't built with the jump-start image either. Instead, administrators had built them using a full install of the Solaris 2.8 operating system. That includes more than 600 programs, of which we use only a small number.

Alarmed, I called a meeting of the Unix administration and security groups. It turned out that the Unix group had created a new jump-start image based on the full complement of the operating system because it was having problems with an application that needed some shared libraries that weren't part of the original, secure image.

Furthermore, the developers of the application in question weren't sure which libraries were needed for proper operation, so the Unix team had decided it would be easier to create a new image that included the full Solaris install.

But the problem went beyond just one program: The Unix group's manager cited examples of other applications that didn't work because the needed libraries weren't available. The jump-start process was clearly broken.

## The Fix

After some debate, we agreed on a procedure. First, we reviewed our baseline image. To come up with a new one, we printed out a list of all the application packages deployed during a full Solaris 2.8 installation. We then crossed out all the programs we knew weren't needed, such as support for unused hardware types and software used to play music or render graphics. Our seasoned Solaris administrators easily ran through this list in less than an hour.

We then installed our Web and database server software to determine which packages and libraries they needed.

Most of the servers in our production environment fall into three areas: Web, application and database. The Web and database environments are fairly static. We know what they need to function properly, but with the application servers, we never know what will be needed for them to function properly. This is what was causing our problems.

Fortunately, Solaris includes utilities that can trace each application's system calls and determine which software and libraries it needs. Usually, we start with the baseline image and run these utilities in a lab environment, but the Unix group hadn't done this because of a lack of time and resources. My security team asked a Unix administrator to write a script we could use to run these utilities for each application and to create a report of all the needed Solaris packages and libraries.

Now we have a static Web and database tier and an application tier that starts with a better baseline jump-start build. We can then add or remove any components based on each application's needs.

We hope we can live with this methodology until the security group can find the time to do some research on commercially available tools that might assist us in this area.

## WHAT DO YOU THINK?

The week's journal is written by a mid-career manager, Mathias Thurman, whose name and e-mail have been disguised for obvious reasons. Contact him at [mathurman@yahoo.com](mailto:mathurman@yahoo.com), or join the discussion in our forum.

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To find a complete archive of our Security Manager's Journal, go online to [computerworld.com/wejournal](http://computerworld.com/wejournal).

## SECURITY LOG

### Security Bookshelf

**Master's Challenges: IT and Your Network Security & Firewall Skills** By Michael J. McNamee, Mark Johnson, David P. Johnson, and James A. Pfeiffer, Addison Wesley, \$39.99, 600 pages, March 2003.

I was impressed by the breadth and depth of content presented in Michael's *Challenge 2*. The authors create interesting scenarios that are typical of those that an administrator, consultant or security administrator would encounter. They offer a good explanation of tools involved and their pros/cons, with the necessary and additional resources to the back of the book.

My only complaint is that the book should include an explanation of the big three protocols, however none were presented with tools that many readers might not have seen.

— Mathias Thurman

### InCharge Adds Security Module

System Management Inc. has released InCharge for Security Information Management, the latest in its InCharge family of management tools that monitors and analyzes the security status of network security devices.

The Multi-Plane, N.T.-based vendor says the product ships March 25. Pricing starts at \$49,995.

### MetaForm's Secure Access

MetaSystems Inc. announced a corporate deal it hopes will help take its software to the enterprise. The Fort Lauderdale, Fla.-based vendor announced a deal with Chatsworth Systems, Chatsworth, Calif., to integrate its enterprise and datacenter solutions into its own product line.

For more information, visit [www.metasecure.com](http://www.metasecure.com).

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## BRIEFS

## Workscope Boosts HR Applications

Workscope Inc. earlier this month announced that it has upgraded its suite of human resources applications. Workscope Enterprise 4.2 includes new configuration tools and enhanced support for planning and executing complex, performance-based compensation programs. The suite also features enhanced employee self-service applications and added decision-support capabilities, the Framingham, Mass.-based company said. Workscope Enterprise 4.2 will be available next month in both license-based and hosted options. Licensed software pricing for the full Workscope Enterprise 4.2 suite, including all self-service applications, ranges from \$350,000 to \$450,000 for a 10,000-employee organization. For more information, visit [www.workscope.com](http://www.workscope.com).

## Sarvega Ships New Tools for Switches

Sarvega Inc. in Burr Ridge, Ill., announced it's shipping XE505 tools, software management tools and an interface for operating its Sarvega XPE 2000 line of switches. The software supports deployments of XPE, acceleration, security and routing settings and is designed to reduce administration costs. It ships at no extra cost with XPE 2000 switches.

Pen & Internet  
Upgrades RiteMail

RiteMail LLC last week released RiteMail 2.0 for Windows and Pocket PC systems. The software allows mobile users to transfer handwritten notes from handheld devices to desktop PCs for e-mail, editing and printing, said the Sunnyvale, Calif.-based company. RiteMail also integrates common PIM features and productivity tools, enabling that type of content to be copied into other applications. RiteMail costs \$21.95 for Pocket PC and \$24.95 for Windows.

TOMMY PETERSON

# Eyes on the Self-service Prize

IT OCCURS TO ME, at the risk of seeming immodest, that I may be the ideal customer for developers of self-service applications to keep in mind. And, as Robert L. Scheier's story ("Know Thy Customers," page 25) points out, if you're going to lure people away from person-to-person inter-

actions to less-expensive automated Web transactions, you need to know what those people are looking for.

The product of a long line of Luddites and impatient by nature, I was slow to come to online shopping or even to free transactions over the Web. I still would rather browse my local brick-and-mortar bookstore than Amazon.com.

I'm always ready to abandon almost any Internet transaction that requires me to answer more than three questions before I can get on with the business at hand. Despite the less-than-subtle efforts of the financial services firm that manages my 401(k) to force all our communications onto the Web, I have ferreted out its customer-service phone number (no easy task) and use it at the first twinge of Internet frustration. Given the choice of going to the office of the nice woman in human resources to get benefits forms vs. filling them out online, I'll take the personal visit every time.

I have even been known to lash out at that most basic, ubiquitous and relatively low-tech symbol of self-service, the automated teller machine. The security camera at my local branch has caught me cursing almost every time I try to negotiate any transaction more complex than withdrawing a quick 50 bucks.

There are lots of people out there like me. That's why companies looking to implement self-service applica-

tions should pay attention to our needs.

Our resistance to self-service has nothing to do with technophobia — we can fall foolishly in love with slick technology as quickly as the next person. But we're less vulnerable to such infatuations when our time and money are at stake. At those times, we're looking for convenience, control and the kind of flexibility of response that has proved hard to automate.

But let's take a closer look at ATMs, whose acceptance is often cited as a pertinent precedent by many self-service technology vendors. Three of the last four vendors I've spoken to acknowledged that their applications sometimes meet "cultural resistance" but pointed to ATMs as the model for the public simply "getting used to" the idea of technology replacing human interaction.

In reality, the simple range of banking functions available through your ATM is perfectly suited for automation. The bank has a database of the information it needs (account balances), and the combination of programmed card and four-digit personal identification number provides easy and effective identity authentication. ATMs appeared in 1969 as cash controllers, and though some big banks such as Citigroup and Bank of America are moving to Web ATMs with a dazzling array of potential services, the function they're most

often used for hasn't changed much.

ATMs were designed to fill a simple need — round-the-clock access to cash — and they deliver (well, most of the time). The machines allow banks to keep customers happy without increasing their hours of business or staff.

But rather than allow the successful saga of the ATM to generate illusory hopes, developers of self-service technologies would do better to take away a couple of humbling lessons. After all, although about 63% of bank customers say they use ATMs, according to the American Bankers Association, less than 25% do banking online from their homes or offices.

The first of those lessons is that you've always got to figure out exactly what's in it for the user of a self-service application. The answer is usually convenience. Do the perceived user benefits outweigh any time, effort and frustration incurred while using the application? Failure to pay attention to this calculation will send users directly to the nearest potentially helpful human, the phone or somebody else's Web site, depending on the situation.

The other lesson is to simplify, simplify, simplify. Make self-service functions as straightforward as you can while still achieving your goals (saving money usually being chief among those). During development, take the time to make the application easy to negotiate: Reduce the number of fields the user needs to fill out, and minimize the amount of information he needs to provide. If a piece of information isn't central to the business function of the application, don't ask for it.

Repeat after me: Card and PIN go in, cash comes out. It's an unattainable ideal for many self-service applications, but it will help keep developers focused. ▀

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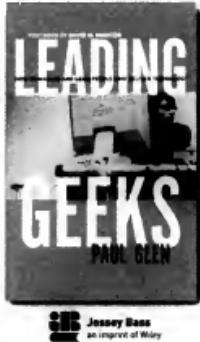
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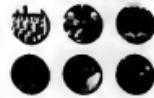
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## Geeks & Geezers

How Era, Values,  
and Defining Moments  
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Warren G. Bennis  
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## CONFERENCE AGENDA subject to change

For details, updates, and to register visit [www.wusa.com/cwt](http://www.wusa.com/cwt)

### TUESDAY, MAY 6

7:00pm	Pre-Conference Golf Outing
7:00pm	Concurrent Workshops and Sessions
8:00pm	Technology Workshops Presented by IBM and AMR and other workshops to be announced
9:00pm	Industry Pipeline Sessions

### WEDNESDAY, MAY 7

7:00am	Buffet Breakfast
7:00am	Welcome and Opening Remarks Ron Miller, Executive Vice President, Computerworld
8:15am	Opening Keynote Presentation Nancy Vicary, Associate Secretary for Information & Computer Security, U.S. Department of Commerce, Administrator of the National Information & Communications Administration
9:00am	Wireless Enterprise Panel Panel Moderator: Bob Bowers, Mobile & Wireless Report Computerworld Panel Members: Tim Dillen, Manager, Mobile & Wireless, Hilti Tools for Projects, CIO; Manager, Corp. Allan Thompson, President & CEO, Revere Technologies (others to be announced)
9:45am	User Case Study: Wireless Security - Risk Management David Newman, Director of Information Security & Risk Management, Deutsche Bank
10:15am	Break
10:30am	Industry Insights Presented by IBM
11:00am	Analyst Update: Mobile Goes Mainstream - What IT Needs To Know
11:30am	Sponsor Introduced End-User Case Studies (concurrent sessions)
12:00pm	Networking Birds of a Feather Luncheon
1:30pm	Industry Innovations Panel Moderator: Gerry Purdy, Ph.D., Principal Analyst, Mobile/Bar Mobile/Bar
2:15pm	End-User Case Study: Effective Use of Wireless Networks Mike Taylor, CIO, Tadd Software
2:45pm	Industry Insights: The Future of Voice Data Converged Networks Mike Newman, Deutsche Bank Presented by PricewaterhouseCoopers, AT&T and AMR
3:15pm	Break
3:30pm	Industry Insights Presented by Symantec
4:00pm	User Case Study: The CIO's Perspective of Integrating Mobile & Wireless Technology into Pacific University's Objectives - Lessons, Benefits and Red Flags Lou Gallo, CIO, Pacific University
4:30pm	Industry Insights Presented by Toshiba
5:00pm	Closing Remarks
5:30pm	Solutions Showcase & Expo with Buffet Dinner

### Travel and Accommodations

For more information on the official travel companies for Mobile & Wireless World, visit our one-stop shop for discounted rates on travel accommodations.

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1-800-460-2222 (or 1-800-439-4939)



### THURSDAY, MAY 8

7:00am	Buffet Breakfast
8:00am	Opening Remarks
8:15am	Opening Keynote Presentation: The Wireless Future Tom Scott, CTO, General Motors
9:00am	End-User Case Study Steve Miller, CIO, Wal-Mart Stores and Todd Crawford, Senior Vice President, Comerica Bank
9:30am	CIO Insights Panel
10:15am	Break
10:30am	Industry Insights Presented by Hilti/Tools
11:00am	End-User Case Study: UPS Unplugged Drew Salzman, Project Manager, United Parcel Service
11:30am	Sponsor Introduced End-User Case Studies (concurrent sessions)
12:00pm	Solutions Showcase & Expo with Buffet Lunch
1:30pm	Industry Insights Jack Charette, CIO, Oracle
2:00pm	End-User Case Study Kris Werner, CIO, Aviation
2:30pm	Industry Insights Presented by IBM
3:00pm	Break
3:15pm	Technology "Spotlight" - Innovation On Stage Featuring demonstrations by EPI/Pointsoft, Comstar, Synchrologic, Netwitness and others to be announced
4:15pm	End-User Case Studies (concurrent sessions)
4:45pm	Leveraging Advanced Technologies to Support Mobile/Bar Jim Leslie, Director of Business Strategy and Planning, Genus
5:00pm	Wireless Locating Systems - The Technology for Large ROI Tim Van de Molen, Internal Logistics Manager Associated Food Stores
5:30pm	End-User Case Studies (concurrent sessions)
6:00pm	Access to Corporate Data in Wireless Environments Anil Chaturvedi, Vice President of Software and Engineering Systems, Mental Model Systems
6:30pm	Purging The Most Out of Your Database with Wireless Edgar Hong, Manager, Advanced Research and Technology, City of Richmond, BC, Canada
7:00pm	Gala Evening "Best Practices in Mobile & Wireless" Awards Ceremony

### FRIDAY, MAY 9

8:00am	Buffet Breakfast
8:30am	Concurrent Workshops and Sessions
9:00am	Technology Workshops Presented by IBM and other workshops as to be announced

Industry Pipeline Sessions

Conference Concludes

### Pre-Conference Golf Outing

Complimentary for Registered IT Users

The Pre-Conference Golf Outing at The Palms Course located at the PV Marriott Denver Springs Resort, is complimentary (\$145 value) for registered IT users. The course is 18 holes and the cost per player is \$100 (available to registered IT users only). The cost per player is an "available" basis and are responsible for all applicable golf outing expenses.

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# MANAGEMENT

03.24.03

## So You Want to Be a CTO

Just what a CTO does on a day-to-day basis depends on who hires you, whom you report to and whether you have budget authority. Lending Tree CTO Rick Stiegler (far right) is in the minority in that he reports to his company's CEO, Steve Campbell. Page 42



## PEER TO PEERS

### Ten Ways To Increase Your IT Value

Lesson No. 1: Execution is everything. Don't get embroiled in endless analysis, and take risks, writes Matthew Krieger, associate director of global network services at Reader's Digest. Page 52

## QUOTE OF THE WEEK

**“** When people rip out everything and put in an all-new [supply-chain] system, it's the equivalent of a heart, lung and liver transplant all at once. It's so risky that you should never do it unless the patient is going to die anyway.”

- Mike Hugo, CIO, Network Services Co.



# MANAGING THE OTHER 20%

Ingersoll-Rand looks to reap big savings by scrutinizing its smallest suppliers. By Steve Ulfelder

## CASE STUDY

INGERSOLL-RAND CO., a manufacturer of industrial equipment, is always seeking to reduce its supply chain costs. And like most big companies, the \$6 billion company tends to focus its efforts on its 20 largest suppliers — which, in line with a widely accepted rule of thumb, account for about 80% of procurement expenditures.

But two years ago, driven by the economic slump that persists today, Woodcliff Lake, N.J.-based Ingersoll-Rand began paying more attention to its smaller suppliers in an intensified effort to drive down costs. The manufacturing company learned there were significant savings to be had in this area simply because it hadn't been scrutinized before. For example, Ingersoll-Rand found that while major suppliers were bending over backward to reduce prices, some smaller ones had actually passed along increases of up to 10% annually — during years when inflation was practically nonexistent.

Smaller suppliers were also more likely to have poor on-time records, which added costs by forcing Ingersoll-Rand to pay premium freight charges for last-minute shipping. Mom-and-pop trading partners often played it fast and loose in ways that would never be tolerated among larger suppliers. The company questioned peers, including competitors, and discovered that it wasn't alone; other manufacturers were also leaving savings on the table where their smaller trading partners were concerned.

Its new determination to cut supply chain costs prompted Ingersoll-Rand to forge an alliance with SupplyWorks Inc., a Bedford, Mass.-based vendor of supplier-relationship management software, and with the Worldwide Logistics Solutions business unit of freight company Roberson Transportation. The three formed a procurement outsourcing business based in Torrington, Conn., called The 21st Supplier, which aims to cut companies' costs of doing business with thousands of small yet indispensable suppliers.

Champaign, Ill.-based Roberson's logistics division had a long-standing relationship with Ingersoll-Rand. That partnership persuaded The 21st Supplier that

*Continued on page 40*

# MANAGING THE OTHER 20%

Continued from page 39

Roberson's technology and capabilities would mesh well with the SupplyWorks software.

Companies that sign on as customers swap their smaller suppliers — which may number in the hundreds — for just one. The 21st Supplier Leveraging Ingersoll-Rand's procurement experience, personnel and massive supply chain network, the outsourcing moves in, takes over the management of customers' relationships with small suppliers and agrees to deliver cost reductions. Operating in full start-up mode, The 21st Supplier has nine full-timers and plans to add staffers as needed. The company views as potential clients all manufacturers that have annual sales over \$500 million and assemble discrete components — such as automotives and electronics companies.

The 21st Supplier's first customer was Hussmann Corp., a \$600 million Ingersoll-Rand unit in Bridgeport, Mo., that manufactures commercial refrigeration systems. According to Bill Lindquist, business unit leader at The 21st Supplier, Hussmann has seen cost reductions of 5% to 15% in several areas. Freight charges are down; inventories have been cut through tighter cycle times; suppliers have been consolidated and supplier performance is better thanks to improved measurement and incentives; and shortages and line stoppages have been reduced. "And we haven't even rolled out our sleeves yet," he says.

Tony Merlo, Hussmann's director of strategic sourcing, says that previously, no one in the company had a program to address that lower 20% of the spending, which goes to about 60% of Hussmann's suppliers. "It makes sense to take and manage that group, and it's working," he says.

A diversified manufacturing conglomerate, Ingersoll-Rand's business units make everything from Schlage and Kryptonite locks to Bobcat earthmovers and Thermex King climate-control systems. All told, its direct procurement spending tallies \$4 billion a year in 400 commodity categories. ("Direct" refers to components that actually go into products, as opposed to indirect materials such as office supplies.)

Naturally, managing the supply chain is critical to such an enterprise. Ingersoll-Rand urges its business units to continually evaluate their suppliers, sorting them into a four-quadrant matrix like that favored by Gartner Inc. (see chart). The variables in the matrix

are risk (to the manufacturer, should it decide to drop a given supplier) and spending.

Prior to the formation of The 21st Supplier, Ingersoll-Rand evaluated offerings from several supplier-relationship management vendors and determined that SupplyWorks' Max, a hosted application, could serve as business units' technology enabler. In addition, Ingersoll-Rand figured that its business units could gain economies of scale by standardizing on Roberson to manage freight requirements wherever possible.

SupplyWorks aims to help enterprises work with tens of thousands of smaller trading partners on matters both tactical and strategic. In the former category, the software performs tasks such as issuing alerts when the purchasing company is close to pricing trip points. "It will say, 'Hey, you're ordering 140 units here, and at 150, you get a price break,'" says SupplyWorks CEO Jeff Hermann.

This type of information tends to be watched closely in the case of strategic suppliers but often slips through the cracks with smaller ones for two reasons. First, smaller suppliers are most likely to be managed manually with hard-copy forms. Second, businesses understandably assign their top account representatives to major suppliers; the mom-and-pop outfits are often handled by new — or simply less experienced — reps, who don't catch everything they should catch.

By encouraging business units to scrutinize smaller suppliers the same way they do their bigger vendors, Lindquist says, Ingersoll-Rand pared down the total number of suppliers and cut costs "significantly" in addition to reducing inventory.

But that doesn't mean the process was smooth as silk or that there's no more work to do. "Within Ingersoll-Rand, we need to make more progress,"

Lindquist says. The conglomerate has 12 major business units and many smaller ones, and "because they're all so independent, each unit isn't much different than a separate company." The 21st Supplier has met with other Ingersoll-Rand business units about outsourcing, but Lindquist says there is no companywide mandate to sign on.

For example, while Ingersoll-Rand has standardized on Oracle Corp.'s software for financials, each unit may have its own enterprise resource planning software. This makes sharing data across units difficult, which in turn means some units are unaware of potential gains to be had in the supply chain. The company has begun to address this issue by creating cross-unit "centers of excellence" for ferreting out exactly this type of data, but it's too early to tell what effect those centers will have.

## Guinea Pig

Several factors made Hussmann a sound testbed for The 21st Supplier's service. As Ingersoll-Rand's most recently purchased business unit, it didn't have Oracle Financials software in place. Moreover, its IT system was a mess, with no fewer than five major operating systems at its sole facility. Lindquist says the integration challenges led to changes in The 21st Supplier's business model.

For example, a full-time programmer was hired to work on integration, with Hussmann and The 21st Supplier splitting the unforeseen expense — which will now be budgeted for every engagement. And the outsourcing found that the best way to address Hussmann's security and access concerns was to lease a server with a firewall, thus establishing a buffer zone that determined which data could be shared and which was off-limits. "That gives [Hussmann] a comfort level," Lindquist says. "We're going to do that from now on" with all customers, both inside and outside Ingersoll-Rand, he adds.

Merlo says Hussmann started small, testing the integration and shifting a small group of its low-risk/low-spend suppliers to The 21st Supplier's oversight. Results were positive. "Next week, I present to the next group," Merlo says, at which time most of Hussmann's suppliers outside the top 20 — about 70 vendors in all — will have been transferred over.

Although Hussmann's 5% to 15% savings are persuasive, outsourcing supplier relationship management may not be for everyone. Gerald McNeerney, a senior analyst at Boston-based AMR Research Inc., says there's "clearly a lot of value" to be found in outsourcing procurement. However, he adds, any logistics outsourcing can be "disruptive," to say the least. The thought of a factory floor being brought to its knees — or a standard — by an outsourcing's error is simply too risky for many businesses to consider. "Even though it can save them a few bucks, companies can be reluctant to enter these [outsourcing] relationships," McNeerney says.

In light of The 21st Supplier's promises and Hussmann's early experience, though, enterprises may want to take a second look. ■

## Ingersoll-Rand Suppliers

High Risk      Low Risk

**High Spend**

These are Ingersoll-Rand business units' strategic supply chain partners; the manufacturers work closely with them to drive out costs wherever possible.

**Low Spend**

These are providers of commodity items purchased by several suppliers. Ingersoll-Rand units cut costs by consolidating buys with other business units and by buying from factories with low labor costs and conducting reverse auctions to which multiple suppliers are asked to name their best prices.

**Collectively, these vendors represent only a small portion of overall spending on purchases, but they furnish strategic, one-of-a-kind components that Ingersoll-Rand business units must have for production.**

**A catchall category for all other suppliers.** They represent a hedgehog of mom-and-pop shops that, because business units spend little with them, have often flown under the cost-cutting radar.

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# MANAGING THE OTHER 20%

Continued from page 39

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Ingersoll-Rand Suppliers	
	High Risk Spending
High Risk Spending	These are Ingersoll-Rand business units whose strategic needs dictate that the manufacturer work closely with them to drive down costs whenever possible.
Low Risk Spending	These are providers of commodity items purchased by several units. Ingersoll-Rand will not work directly with these business units, but may bring them in to work with other business units in Ingersoll-Rand's facilities in which multiple suppliers are asked to name their best prices.
High Risk Spending	These are providers of commodity items purchased by several units. Ingersoll-Rand will not work directly with these business units, but may bring them in to work with other business units in Ingersoll-Rand's facilities in which multiple suppliers are asked to name their best prices.
Low Risk Spending	A standard strategy for all other suppliers. They represent a homogeneous group of commodity-type items that, because Ingersoll-Rand units spend little with them, often have little incentive to work with the manufacturer.

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## Looking Deeper, Working Smarter

An intelligent infrastructure provides **end-to-end QoS** for superior performance and control.

Every business has its priorities. So why not share them with your network? When you run your applications over an intelligent network infrastructure, you can ensure every data packet is handled according to the priorities and policies you set, bringing your network operations into perfect sync with your business goals.

Cisco intelligent switches and routers come equipped with the most sophisticated quality-of-service features available, allowing you to deliver predictable, measurable, even guaranteed levels of performance across the LAN and WAN.

An intelligent infrastructure looks deeper into network traffic, identifying the users and applications behind the streams of data. As a result, it can classify and mark packets to make sure your most pressing needs are met first, without stranding anyone or anything else. IP voice and video applications, for example, can be given precedence over less time-sensitive applications, eliminating the delays and packet loss that would otherwise get in the way of clear, cost-effective communication.

An intelligent infrastructure also makes more efficient use of bandwidth, which becomes particularly important as applications and services are extended across the WAN, where bandwidth is a scarce and pricey commodity. Applying QoS can significantly improve the response times of your most demanding applications, without increasing your company's bandwidth costs.

Cisco's QoS features are based on advanced networking protocols, which are seamlessly integrated with each other and the hardware through Cisco IOS® Software, the operating system that unifies all Cisco switches and routers and provides most of the intelligence in the network.

Cisco management software lets you take full advantage of these capabilities without being an expert, and will even automatically apply best practices across all network devices. These management tools can help your company become more agile, too, making it easy to adjust to changing priorities. So easy, in fact, that policies can shift according to time of day, accommodating different business needs and patterns of network usage.

The end result is a network optimized to make your company as productive, efficient, and profitable as possible. And after all, isn't that the top priority?

Advanced QoS mechanisms offer unprecedented control

**Cisco intelligent switches and routers** provide the industry's most comprehensive quality-of-service features, enabling you to maintain predictable performance levels and support delay-sensitive IP voice and video communications across the LAN and WAN. Features include:

**Classification:** Allows the network to distinguish different types of traffic based on the applications involved, then sort them according to established priorities.

**Marking:** Flags data packets to ensure they are handled based on their relative importance to your business goals, so the most critical needs are met first.

**Policing:** Limits traffic flows to defined rates so large files won't swamp the network and degrade application performance levels.

**Buffering:** Holds low-priority packets while urgent traffic moves ahead, which conserves bandwidth by avoiding the need to retransmit data.

**Scheduling:** Controls the timely delivery of traffic and alleviates congestion so applications can maintain peak performance levels.



**I**N JANUARY 2001, three stories in *Computerworld* mentioned a chief technology officer, or CTO. In January 2003, 26 stories did. The CTO is clearly becoming more common, but it's a difficult role to pin down. CTOs can be technology gurus, visionaries, infrastructure experts or policy enforcers, and contrary to popular belief, they don't usually work for the CIO. "If you talk to six people, you'll get six definitions of the CTO," says John J. Davis, president of John J. Davis & Associates Inc., an IT executive search firm in New York.

To get a feel for what CTOs are really about, it helps to look not only at their work, but also at the human and financial dynamics around them.

Although the role is becoming more common, CTOs are found in only 37% of companies, according to a 2002 survey of several hundred midsize to large companies by Cutler Consortium in Arlington, Mass. The CIO may be involved in recruiting and hiring the CTO, but most CTOs report to another senior executive, such as the CEO or the chief financial officer, and they fill a variety of roles.

In large companies, the CIO's increasing emphasis on business — often on a worldwide scale — may leave no one minding the IT store, Davis says. In those cases, the CTO is brought in to keep an eye on infrastructure and technology.

That's the situation at Foster City, Calif.-based Innovant Inc., where Scott Thompson is in the process of hiring a CTO. "When you're running a big global business, there are a lot of [infrastructure] decisions that have to be made on a daily basis," explains Thompson, who is executive vice president for technology solutions and de facto CTO at the wholly owned transaction-processing subsidiary of Visa International Inc.

"My job is about translating business plans into technology priorities and creating that constant linkage back to the business and the strategy of the business," he explains. "That translates into a series of initiatives and projects and a development agenda."

In contrast, the CTO, who will report to Thompson, will have "day-in and day-out responsibility for global enterprise architecture, making sure all our transactions in nearly 200 countries always work," he says.

In start-ups, the CTO often fills a catchall technology role. "The smaller the company, the less they can afford the luxury of a guy [who is] more into

strategy than technology delivery," Davis says. "So they get someone with technology as the prime skill set."

Rick Stiegler has been CTO at Lending Tree Inc. in Charlotte, N.C., since the mortgage company's founding in 1997. In the early days, because the staff was small, his job ranged from software design and configuration management to business analysis and technical presentations for investors.

Now with 250 employees and a technology department of more than 100, the company has hired CTO Steve Campbell, and Stiegler is moving away from business concerns. Stiegler provides architectural guidance, reviews the technical design for all projects and examines the technical implications of strategic initiatives.

Stiegler, who now reports to Campbell, works primarily on architecture. Campbell does "all the hard stuff," including handling vendors and purchas-

**“I've done enough of wearing all the hats. I want to go back to the cool stuff.”**

**RICK STEIGLER, CTO, LENDING TREE INC.**  
in technology, Stiegler says. "He manages air cover to the business," he says. "When I'm trying to figure out a bottleneck in the database, he's explaining to the business what's going on and when we'll get it going again."

Stiegler checks with Campbell on any proposed adjustments in architecture or technical philosophy. If they disagree, Stiegler says, "we arm-wrestle, and I usually lose." But it almost never comes to that. "When we disagree, it's usually because one of us has incorrect data," Stiegler says. "Once we both have the same facts, we arrive at the same conclusion."

Stiegler enjoys having a CTO to handle the business aspects of technology. "I've done enough of wearing all the hats," he says. "I want to go back to the cool stuff."

At some companies, the CTO is steeped in the cool stuff as the technology visionary. "Companies often bring CTOs in to develop a longer-term technology strategy, one the CIO just doesn't have time to develop," said Steve Andriole, a consultant at Cutler Consortium.

That's the case at Black & Veatch Corp., an engineering, construction and consulting company in Kansas City, Mo., and one of the 100 largest private corporations in the U.S. CTO John G. Voeller is a lone visionary whose job transcends traditional IT boundaries. "I don't just look at the technology of my enterprise," he says. "I look far beyond IT, at nanotechnology, biotech and other domains." His

Just what a CTO does depends on who hires you, whom you report to and whether you have budget authority. By Kathleen Melymuka

**SO YOU  
WANT TO BE A  
CTO**

mission is to understand the goals of the business and of its clients, anticipate their needs and guide them toward technologies of value.

As Black & Veatch evolved from a partnership to a corporation in the 1990s, Voeller, who used to head IT, passed the reins to Bob Fine, a business-oriented CIO who had "fought the corporate war." As CIO, Fine has improved vendor relationships, cut costs and streamlined IT activities. CTO Voeller concentrates on the technology vision. Both report to the chief administrative officer, but Fine has the power of the purse. All IT purchases are made through his office, and he manages vendors.

Andriole says that in companies where the CIO and CTO report to a senior executive, their different focuses frequently cause friction because they compete for funding. "The tension comes from having the CTO always pushing the envelope, while the CIO is worrying about making the train run on time," he says.

Usually, the CTO and the CIO share the technology budget, Andriole says, and tension can arise if the CTO seeks to divert money from "putting out brush fires" to building new architec-

**L** JOHN B. VOELLER: As a mechanical engineer at Black & Veatch, he took a short assignment to solve a problem in MIS and never left. He became partner in charge of technology in the early '80s and CTO in the early '90s.

DEBRA DOMEYER: Worked on computer systems and encrypted satellite technology at the White House and on Capitol Hill. Managed the White House Office of Automation, installing the first PCs in the West Wing in 1984. Worked in IT at financial services companies.

JOHN B. VOELLER: Served as CIO at Times Mirror Corp. and Pacific Gas & Electric Co.

RICK STEIGLER: Served as vice president of advanced technology at Greenwich Capital Markets Inc. and was a vice president of IT at Morgan Stanley.

CATHY BRUNE: Started as a data center tapes mounter at Allstate. Moved to business positions in claims, marketing and pricing. Served as regional vice president of sales, director of the call center and vice president for infrastructure.

tures. "They [CTOs] hate to spend money on things like life support for old systems, so they'll recommend diverting funds from those server upgrades to build the architecture to exploit Web services," he says.

But Voeller says that's not the case at Black & Veatch. "We work as a very good team because we respect each other's ideas," he says. "Our executives are receptive; they believe in and revere imagination."

The key to a good CTO/CIO relationship, Voeller says, is "clear delineation of roles and responsibilities and a reward system based on doing these well." A sure road to ruin, he adds, would be "a CIO with a technology bent who secretly wants to do the CTO job — or vice versa."

The fact that Voeller doesn't report to the CIO isn't unusual. The CIO survey found that 74% of CTOs don't. At Allstate Insurance Co. in North-

brook, Ill., CTO Cathy Brune reports to the chairman, and she is the undisputed technology leader. "I was made a senior VP and CTO because we wanted people to understand that I am in charge of technology, and I will make calls and break the ties," she says. Her role is to manage overall architecture, infrastructure and security, a task made trickier by the fact that Allstate's two main divisions have their own IT groups, CIOs and technology budgets.

As Allstate's first CTO, Brune needs to reconcile the IT wish lists of the two business units with the technical standards she's hammering into place. "I cut the baby in half between the two businesses if necessary," she says. In other words, if one business wants one sort of infrastructure/architecture and the other wants another, she decides which will be the corporate standard. "The business unit presidents listen to me," Brune says.

Before he became CTO, there was one CIO who owned the IT budget, and the business unit presidents had to come to him for technology funding. Now the two businesses have their own IT budgets, and they can choose to apply the applications they need to drive their strategies — as long as those follow the CTO's technology standards. Infrastructure, governance, security and companywide architecture belong to Brune.

Because Brune reports directly to Allstate's chairman, she could wield a big stick. But instead, she is persuading the CIOs and their business unit presidents to do things her way. She acknowledges, though, that this entails a lot of "mud wrestling."

"This job is a lot more relationship-driven than I would have imagined," Brune says. "But by doing this early, we get buy-in from everyone around our tech strategy."

The inevitable friction between CTOs and CIOs is a good thing, Andriole says, because it makes companies consider technology trade-offs. "It forces you to think about the implications of putting out those brush fires for what you have to be doing in two to three years," he explains. "It sets up a great dialogue in the corporation." ■

**Melymuka is a Computerworld contributing writer. Contact her at kmelymuka@earthlink.net.**

#### WEARING BOTH HATS

**Read about the hybrid role of CTOs who work at Web-based companies:**



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## SUPPLY CHAIN ADVICE:

# Tap Computers for The 'Dog Work'



Streamlining a supply chain isn't easy, but the simpler the technology involved, the better. The reason? "Most of us are regular folks. If you have to be a genius to figure something out, we're doomed," So says **Mike Hugos**, CIO of Network Services Co., a \$6.8 billion distribution cooperative company in Chicago suburb Mount Prospect. In his new book, *Essentials of Supply Chain Management* (John Wiley & Sons Inc., 2003), Hugos lays out how to decide what kind of supply chain technology your company needs and how much to spend to get it. Hugos recently spoke with Computerworld's Julia King.

**As a CIO, how did you get involved in the supply chain process? We're a co-op.** There are 75 owner companies, each with an individual ERP [enterprise resource planning] system. When I came on in the fall of '99, we were updating our strategic plan. The owner companies made it very clear to me to not even suggest that we all standardize on SAP or Oracle or some other software.

Meanwhile, some of our big customers—which include Baskin-Robbins, all of the Starbucks stores—wanted to centralize their procurement operations. They didn't want to phone and fax orders. They were creating electronic order management systems that we needed to plug into and then route orders to our members to fill. Our customers wanted statement billing. They wanted a seamless coordinated supply chain. They said to me, "You figure it out."

**Where do you start such an obviously huge project?** The first thing I like to do is on a big sheet of white paper draw out the sequence of activities as you know your supply chain. Where you don't know things, put in a question mark. If you're a manufacturer, look back to

raw material providers. Then, look forward to your customer. I learned a long time ago in sales to look at what your customer's customer is doing. Lay that out as part of the major flow of activities. I've found again and again that if everyone has a common visual framework to look at, and then you start plugging details into slots on that framework, a picture will emerge.

**And then what?** Steady, as she goes. Solve a piece at a time. It's a lesson that didn't play well in the '90s. When people rip out everything and put in an all-new [supply chain] system, it's the equivalent of a heart, lung and liver transplant all at once. It's so risky that you should never do it unless the patient is going to die anyway. Instead, you ought to take a look at the supply chain diagram — a simple circle-and-arrow, basic reference diagram — and ask, "Where are the bottlenecks right now?" Maybe the bottleneck is procurement or inventory control or forecasting. Identify the worst bottlenecks. Then come up with point-specific [IT] solutions to those bottlenecks. Fifty-million-dollar SAP solutions played well in the '90s, but I don't think they were ever good practices.

**How come?** We spent the last 10 years with massive all-in-one systems. I think the answers are there for everyone to see. They don't work very often, and the world changes so quickly that you'll come up with a new solution to an old business model. And if the people who have to use a new system either don't buy into it or feel it's simply a prelude to being laid off or the

equivalent of speeding up the assembly line, they'll take a passive-aggressive attitude and do everything from spill coffee on the keyboard to feed the system goofy data. As soon as that happens, you can typically blame the technologists who are so absorbed in technology and the least politically aware that they make very easy scapegoats.

**So, are you saying to solve the bottlenecks one by one, with different software, later instead integrating those software applications?** There's something called the miracle of the ASCII file. I tell members I will never stand up in front of a technology organization and brag about sending encrypted ASCII files over the Internet, but it works. Every system has batch-import capability, and that's where I believe in about 2003 a new acronym appeared called EAI [enterprise application integration]. EAI is really about passing ASCII files across separate applications. It's not that we didn't know how to do that in the late

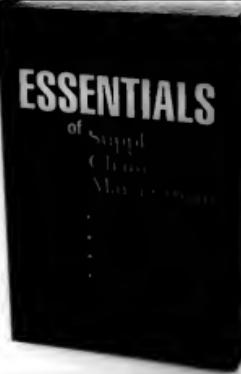
'80s; it's that it wasn't cool. I come down in favor of the practical approach.

**How does it work?** For companies with EDI [electronic data interchange], we reformat ASCII files to an EDI 850 or other file for EDI. We've all agreed on a certain ASCII file format. If they have to reformat to that, it's a trivial thing to do. People will call me primitive, but the use of ASCII flat files sent over the Internet is an amazing thing. When people wax enthusiastic about Web services or the Internet version of object-oriented XML, it's basically an ASCII flat file with angle brackets that tells you what that means. In a high-change, tight economy, I think you're always better off to go with point solutions and a guaranteed 12-month payoff.

**Can you give me an example from your own experience?** We have a wholly owned distributor that stocks slower-moving items, but items that are necessary for national account contracts. That organization works on very thin margins. We've been very reluctant to add head count. But our business is growing steadily, so they're swamped. Members order from the warehouse, then the warehouse turns around and places the order with a supplier. We're now working on an initiative where each member agrees on standard format for an invoice. Instead of a member calling us or faxing an order, they can export it in a standard ASCII flat file, encrypt and transport the ASCII file over the Internet.

**Our order entry system simply imports that file and all order entry work, and data entry work is automated. Automate the "dog work" and let the people handle the exceptions. Why spend money on computers and artificial intelligence when I have real intelligence trying to break free of the dog work that plagues them everyday.**

People get into these exquisitely complex systems. Meanwhile, we're having this recovery that is not creating jobs. I believe [that] if computers monitor the daily in-and-out work and you can design a system where people are served by computers, you'll get something different. But when you try to have computers do everything, it won't work. Computers are great at dog work, but I don't need computers to make decisions for me. ▀



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## SUPPLY CHAIN ADVICE:

# Tap Computers for The 'Dog Work'

**Streamlining a supply chain isn't easy, but the simpler the technology involved, the better. The reason? 'Most of us are regular folks. If you have to be a genius to figure something out, we're doomed.' So says Mike Hugos, CIO of Network Services Co., a \$6.8 billion distribution cooperative company in Chicago suburb Mount Prospect. In his new book, *Essentials of Supply Chain Management* (John Wiley & Sons Inc., 2001), Hugos lays out how to decide what kind of supply chain technology your company needs and how much to spend to get it. Hugos recently spoke with Computerworld's Julia King.**

**As a CIO, how did you get involved in the supply chain process? We're a co-op. There are 75 owner companies, each with an individual ERP [enterprise resource planning] system. When I came on in the fall of '99, we were updating our strategic plan. The owner companies made it very clear to me to not even suggest that we all standardize on SAP or Oracle or some other software.**

Meanwhile, some of our big customers — which include Baskin-Robbins, all of the Starbucks stores — wanted to centralize their procurement operations. They didn't want to phone and fax orders. They were creating electronic order management systems that we needed to plug into and then route orders to our members to fill. Our customers wanted statement billing. They wanted a seamless coordinated supply chain. They said to me, "You figure it out."

**Where do you start such an obviously huge project? The first thing I like to do is to put a big sheet of white paper draw out the sequence of activities as you know your supply chain. Where you don't know things, put in a question mark. If you're a manufacturer, look back to**

raw material providers. Then, look forward to your customer. I learned a long time ago in sales to look at what your customer's customer is doing. Lay that out as part of the major flow of activities. I've found again and again that if everyone has a common visual framework to look at, and then you start plugging details into slots on that framework, a picture will emerge.

**And then what? Steady as she goes. Solve a piece at a time. It's a lesson that didn't play well in the '90s. When people rip out everything and put in an all-new [supply chain] system, it's the equivalent of a heart, lung and liver transplant all at once. It's so risky that you should never do it unless the patient is going to die anyway. Instead, you ought to take a look at the supply chain diagram — a simple circle-and-arrow, basic reference diagram — and ask, "Where are the bottlenecks right now?" Maybe the bottleneck is procurement or inventory control or forecasting. Identify the worst bottlenecks.**

**Then come up with point-specific [IT] solutions to those bottlenecks. Fifty-million-dollar SAP solutions played well in the '90s, but I don't think they were ever good practices.**

**How come? We spent the last 10 years with massive all-in-one systems. I think the answers are there for everyone to see. They don't work very often, and the world changes so quickly that you'll come up with a new solution to an old business model. And if the people who have to use a new system either don't buy into it or feel it's simply a prelude to being laid off or the**

equivalent of speeding up the assembly line, they'll take a passive-aggressive attitude and do everything from spill coffee on the keyboard to feed the system grody data. As soon as that happens, you can typically blame the technologists who are so absorbed in technology and the least politically aware that they make very easy scapegoats.

**So, are you saying to solve the bottlenecks one by one, with different software, and later look at integrating those software applications? There's something called the miracle of the ASCII file. I tell members I will never stand up in front of a technology organization and brag about sending encrypted ASCII files over the Internet, but it works. Every system has batch-import capability, and that's where I believe in about 2001 a new acronym appeared called EAI [enterprise application integration]. EAI is really about passing ASCII files across separate applications. It's not that we didn't know how to do that in the late**

'80s; it's that it wasn't cool. I come down in favor of the practical approach.

**How does it work? For companies with EDI [electronic data interchange], we reformat ASCII files to an EDI 850 or other file for EDI. We've all agreed on a certain ASCII file format. If they have to reformat to that, it's a trivial thing to do. People will call me primitive, but the use of ASCII flat files sent over the Internet is an amazing thing. When people wax enthusiastic about Web services or the Internet version of object-oriented XML, it's basically an ASCII flat file with angle brackets that tells you what that means. In a high-change, fast economy, I think you're always better off to go with point solutions and a guaranteed 12-month payoff.**

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# NavSea's ROI Ship Comes In

E-procurement system cuts buying time by over 85%. By Matt Hamblen

**T**HE DOT-COM BUBBLE WAS already bursting when the Naval Sea Systems Command (NavSea) launched its SeaPort e-procurement system in April 2001. Since then, it's earned a high enough return on investment and regular positive feedback to be considered a success by more than 300 procurement managers, says Claire Grady, SeaPort program manager.

Key to the project's success was that NavSea was able to work with a single e-commerce procurement software vendor, Commerce One Inc., and follow specific guidelines agreed upon by higher-ups at the naval command.

The installation required a little more customization than was anticipated, but the system works reliably, Grady says. Yet she's somewhat skeptical about expanding the SeaPort system beyond its current use of buying professional services to include purchasing specialized goods for building ships and weapon systems for the U.S. Navy and Marines, which provide the lion's share of NavSea's current annual budget of \$59 billion.

The project grew out of pressure from the secretary of Defense to cut costs in 1999, a vastly different era for defense spending than today. NavSea was told to cut about 10% of its professional services procurement spending over five years, from 2001 to 2005. Professional services include program management, logistics support, engineering and financial management.

"SeaPort is on track to meet its savings [goal]," Grady says. The time to complete an acquisition, from start to finish, has dropped drastically —

from 270 days to between 30 and 42 days, or by over 85% — mainly because paperwork has been eliminated.

NavSea has also been able to save volume discounts by working with regular bidders, which the system ranks based upon quality of service and past performance, not just price, according to Grady and Kathleen Monahan, who recently retired as director of the service systems division at NavSea.

NavSea picked Commerce One in Pleasanton, Calif., over nine other vendors partly because it's off-the-shelf software required little customization. In two years of operation, one of the few difficulties that NavSea has faced is customizing Commerce One's software to track small, disadvantaged businesses that the government wants to support, Grady says.

Upfront software license and installation costs were \$500,000. Annual support costs are \$160,000, and annual Web hosting costs are \$240,000. NavSea has a five-year contract for hosting and support. Based on current and projected savings, the ROI goal that NavSea set with Commerce One has been met "very easily," says Grady.

Monahan and Grady say that 85% of purchasing managers consistently rate SeaPort an improvement over the old paper-based system.

"Commerce One bent over backward to make the portal screens the managers use very user-friendly," Monahan says.

Grady attributes the project's success to top management accepting the objectives early on, as well as to all of the main players getting involved in the ways that NavSea needed to improve procurement. This included rating

bidders by their performance. "It was a holistic look," she says.

The 10% savings, while a mandate in the case of NavSea, is realistic for any organization to achieve from an e-procurement implementation, according to analyst Albert Pang at Framingham, Mass.-based research firm IDC. "Ten percent is consistent with what other companies have achieved when they start deploying e-procurement," says Pang notes. "When you talk about an organization that processes tens of thousands of purchase orders a year or higher, certainly 10% would help tremendously."

## Streamlining Necessary

Pang said he has followed the SeaPort implementation and spoke to Navy officials several years ago about the need to consolidate the procurement processes the Navy had set up with thousands of suppliers. One administrative change to SeaPort allows for 21 primary supplier teams to bid on work, and each team works with multiple contractors and a recognized team leader.

"When I talked to the Navy in the late '90s, they had no idea at the top manager level who was buying the stuff, how much they were paying, how many suppliers there were," Pang recalls. "The U.S. Navy was dealing with so many operations around the country and world, and some people were able to buy stuff on their own. Maverick spending was rampant in many parts of government."

Pang acknowledges that the e-procurement software can organize only the processes that administrators put in place. "If people doing procurement aren't adhering to business rules, the idea will fall apart," he adds.

So, whether NavSea will be able to drastically control costs to make taxpayers happy is an open question. In fact, procurement of professional services amounts to only \$300 million annually, a fraction of NavSea's current budget. And Grady doesn't think buying parts or materials for ships online makes much sense because "a lot of what we buy is unique, and there aren't a lot of efficiencies in buying a unique item online." Still, NavSea will look to continuously improve current processes to try to derive greater benefit from its e-procurement system, she says. ■

## HOW IT WORKS

### SeaPort

The e-procurement system at NavSea replaced a paper-based system that didn't easily enable an evaluation of a contractor's performance. Here's a look at the process now.

1 Program manager logs into SeaPort and defines requirements for the purchase of engineering, logistics, financial or program management services.

2 Once the formal purchase requisition is approved, a contractor log on creates an electronic bidding event and invites a group of contractor teams to submit bids.

3 When bids are received and the bidding event closes,海通评估委员会 reviews the bidders on SeaPort to evaluate proposals on multiple criteria, including the bidder's past performance and the price it's offering, as well as its technical capabilities. Evaluators are making a hard-value bid.

4 After evaluations are read,海通将 the purchase order electronically to the winning contractor or contractor group.

## MORE ON NAVSEA

NavSea officials hope SeaPort would help streamline the procurement process when it went live in 2002.

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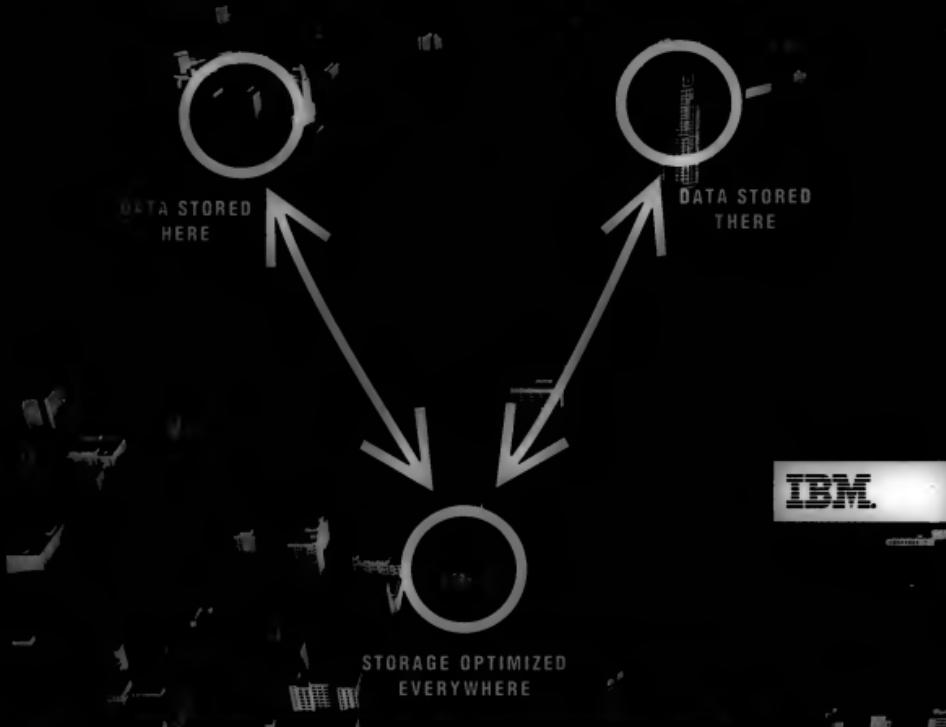
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# IT Customers Rule Innovation

**Users must demand technologies to improve business. By Mark Hall**

**C**omputerworld columnist David Moschella's new book, *Customer-Driven IT: How Users Are Shaping Technology Industry Growth*, should send chills down the spines of executives inside the boardrooms of major IT vendors. He brilliantly argues that since the beginning of the computer industry, IT suppliers have been the main drivers behind technology innovation and, therefore, its growth and success. But that's not, or "wasn't," as he calls it, true.

Customers are now the big players in the innovation game, and the likes of Bill Gates, Scott McNealy and Carly Fiorina are mere onlookers. Moschella rightly labels this a "huge cultural and business change" that's fraught with danger. That's because users are too comfortable letting IT suppliers point them in the right direction with cooler, faster and more efficient technology to improve existing

systems. But IT customers no longer need to improve IT for its own sake. Now the reason they need technology is to make their businesses better. And if IT users fumble the opportunity to exploit IT for that purpose, Moschella writes, "IT business will almost certainly stagnate."

And fumble they might. The author points out that users can botch opportunities to exploit technology by refusing to see its value to business. He cites the music industry's opposition to peer-to-peer systems such as Napster as the kind of backward customer thinking that can stifle IT innovation.

He also slams some customers' narrow focus on sifting every IT opportunity through the return on investment sieve. He writes that "customers have to forget formal ROI numbers and simply 'Rely On Instinct.'"

Customer-driven innovation is also at risk because IT vendors need to get with the new program and shift their focus to developing products that let users have success. One other pitfall facing this new wave of technology innovation is that the historical supplier-driven waves are boosted by entrepreneurs motivated by wealth and status. But among users in markets such as health care and insurance, that motivation is sorely lacking and "will likely remain a serious IT industry market barrier," Moschella writes.

But not all is gloom and doom. Throughout the book, Moschella cites numerous examples that IT users can easily see how other customer innovation of IT has worked. And he also shows where it's likely to play out in the future. For example, in one two-column chart, he identifies 40 areas where customer business innovations are likely to inspire vendor product de-

velopment and not the other way around.

As is the case with most IT business books, readers will need to slog through this author's review of computer history. For those few unfamiliar with this terrain, Moschella's analysis of the prior waves of computing (such as mainframes and PCs) is concise and readable. But although it does help set up his thesis, it's not essential to getting to the point of this important book, which posits that IT's future is no longer centered amid engineers in Armonk or Redmond or even Silicon Valley. It rests with IT leaders in every IT data center in the world. ▶



**BOOK REVIEW**

## Beware the Herd Effects

Given the prevalence of engineers and programmers, one would think that the IT industry would be among the most rational of businesses. But to me it's pretty clear that the single most important factor in the IT industry's health is the overall customer mood, often referred to as "business confidence." Indeed, sometimes I think that much of the history of computing can be summed up as follows: Computers are so confusing and complicated that customers operate in a constant (if not always conscious) state of bewilderment and even fear. In this climate, it's only natural that IT buyers often seek safety in numbers. The result is powerful "herd effects," which manifest themselves in two main ways: unusually high supplier concentration and recurring boom and bust cycles.

- Except from *Customer-Driven IT: How Users Are Shaping Technology Industry Growth*, by David Moschella (Harvard Business School Press, 2003)

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DAVID MOSCHELLA

## BRIEFS

## TRW Establishes Offshore IT Center

Satyam Computer Services Ltd., one of India's largest IT outsourcing companies, announced that it has set up a dedicated offshore software center for TRW Automotive Inc., a Livonia, Mich.-based automotive parts manufacturer. Located in Chennai, India, the new center will provide TRW with a broad range of IT and business services, including process consulting, business process re-engineering and application management.

## Training Portal Set To Save Ford \$17M

Ford Motor Co. today is launching the Ford Learning Network, a massive Web-based portal that integrates all training management, online testing and learning resources in a single place for use by the automaker's 300,000 employees worldwide. The network's library includes more than 400,000 titles, including 1,500 online courses, 1,900 e-books, an array of Ford internal online Web sites and hundreds of journals and periodicals. Today's launch is the culmination of a three-year project that will result in savings of \$17 million, according to Ford.

## Perot Gets Medical IT Outsourcing Deal

Plano, Texas-based Perot Systems Corp. will provide all IT management services, including application, program and project management, as well as systems implementation and infrastructure services, to Taffe New England Medical Center Inc., under an agreement announced last week.

The deal calls for Perot to help the medical center split from its former corporate partner, Lifespan, a Rhode Island-based health system. Lifespan previously provided all IT services to the Boston-based medical center.

MATTHEW KRIEGER • PEER TO PEERS

## Ten Ways to Increase Your IT Value

INFORMATION TECHNOLOGY departments are under more pressure than ever to prove their value in today's climate of continued economic constraints and depressed IT spending. In these times, we must be diligent about not losing sight of the fundamentals. Based on my nine years of experience in IT, here are 10 ways to increase your value and that of IT at your company:

**1. Execution is everything; just get it done.** True, it's a cliché, but more than ever, the business is in need of an IT department that can deliver. Don't get embroiled in endless analysis, take reasonable risks and just do it. You'll show the business that your department is competitive and action-oriented.

**2. Deliver solutions, not ideologies.** Drop the religious debates over Unix vs. Linux vs. Windows. Forget about historical allegiances to specific platforms, and resist the habit of calling yourselves the "Windows group" or the "Unix team." Just deliver the most appropriate solutions that are consistent with your enterprise's overall IT architecture at the most competitive cost.

**3. Deliver a consistent message.** Tactics change, but your strategy and vision should be good for the long haul. If you've got a solid message that's consistent with the overall corporate strategy and vision, repeat it enough and people will follow. But also remain agile and prepared to change, because at some point the technology and business will change.

**4. Permanently engage the business.** Everyone knows that successful IT departments are closely aligned with the



business, but for IT employees who work behind the scenes on networking and infrastructure issues, it may be difficult to see how your work contributes to the overall business.

Find your own hook into the business. Pick a project or a department, build the relationships, and show how you and your department can contribute to their goals.

**5. Learn the "stack."** In our IT department, we use the term stock to describe all the components of a particular system, from the physical infrastructure to the business application and content, and everything in between. The best IT people understand the application stack from bottom to top. Understanding applications and technologies this way makes you more valuable, engages you with the business and gives you a competitive advantage over those who understand just their piece.

For example, there's traditionally a gap between the developers who write an application and the network infrastructure people who provide the transport. Those who can bridge the gap by understanding how the application and the network interact offer extra value.

**6. Consider less-conventional technology alternatives.** Competitive IT departments recognize the value in low-cost, functional solutions. For example, a year and a half ago it was almost inconceivable to consider running a business with a productivity suite other than Microsoft Office. Today there are several lower cost or free alternatives, such as open source or inexpensive commercial suites, that are rapidly becoming functional replacements. The same is true for other product segments as well, so consider these before your next major upgrade.

**7. It's a buyer's market, so take advantage of it.** Vendors are more willing to negotiate than ever. Simply needing to survive, they're not to compete. Take advantage by playing the field for competitive bids and driving down prices.

**8. Think entrepreneurial.** Target your IT initiatives across the entire enterprise when possible. Cost pressures make it a necessity, because management will resist site-specific implementations.

**9. Respect technology and the business it enables.** It has become popular in the past several years to proclaim, "It's not the technology that's important; it's the business." While generally true, this phrase is overused. Let's face it — good technology can help to drive down the costs of doing business and enable new business, and that's a good thing. Maintain a healthy balance in your business/technology focus.

**10. Develop a working knowledge of Linux.** Windows isn't the only game in town anymore. Linux is becoming increasingly common, so it's important to understand the economic and technical issues around it. You'll be better prepared to answer your customers' questions as a result. □

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## BRIEFS

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Department of Defense, both areas are looking at annual growth of up to 18% per year, according to IDC research. Theo Chisholm, spokeswoman for IBM Health Sciences, said once mapping of the human genome opened the gate, the need for systems to mine and process data exploded. IBM estimates the market to exceed \$30 billion per year in the U.S. by 2006.

Take note: the growth isn't just a U.S. phenomenon. Bio-IT spending, according to IDC, will more than double in the next three years in Australia and New Zealand, where more than 300 biotech firms are employing over 6,500 people.

The mission for Informatics is two-fold. First, there is intense pressure to identify new targets in pharmaceuticals and health treatment quickly and at a lower cost. Just as important is eliminating targets that won't prove out as quickly as possible. In the defense and security category, there's pressure on everything from sourcing a new smallpox vaccine to addressing probable bio-toxins that could be used as weapons. On the chem-informatics front, chemistry and IT are married up in developing new detection systems for use in public buildings and areas, as well as in military action.

What's rare in the industry are people qualified for the work, knowledgeable in the sciences - biology and chemistry - as well as in applied mathematics

and information technology. Companies are looking for people who have built, used and applied IT tools to data, from DNA to outcomes of clinical testing. The Whitehead Institute Center for Genome Research estimates that about half as many people are prepared for the field as are needed long-term.

For IT professionals interested in the bio-IT field, there are some stepping stones to landing the jobs. The key languages used are C++, Java, Fortran and Perl. Many times, the toughest assempse to get is in the biological sciences - where IT is applied for the purpose of biological findings, not just for development of new applications. Dual degrees, for that reason, are important. Numerous master's degree programs have opened in bioinformatics, and the Center for Bioinformatics and Computational Biology offers a mentoring program. On-line courses also can supplement experience. Certifications include the Certified Bioinformatics Specialist and the Certified Bioinformatics Master.

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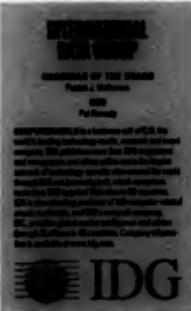
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Those are all good ideas. Some cost more than others, and now is a bad time to look for money to spend. Still, if you're a CIO, you should throw your support behind solving the burnout problem.

But if you're an IT manager or team leader, don't jump into this one with both feet just yet.

Before you look for money for training or raises or bonuses, first understand the problem you're trying to solve.

Burnout means people have stopped caring. That's the symptom.

But before you can make your people care again, you've got to know what they care about — what drives them.

Raises and bonuses will work for employees who are driven by the money. (That doesn't mean they're greedy, just that they keep score with those dollars, and more money makes the game more interesting.)

And training will work for employees who are driven by a desire to learn new things. That category includes a lot of IT people.

But not all of them.

Some employees are driven by challenges. They want to try things they're not sure they can do.

Some are driven by accomplishment. They get their satisfaction

from finishing the job.

Some live for variety — they want to keep trying new things. Some are happiest with stability that lets them keep getting better at what they do. Some want to do small things well. Some want to work on big projects that will change the world.

Some are driven by the desire for praise. Some are driven by loyalty. Some are driven by commitment to the team.

In each case, if they're not doing what they care about, they'll get burned out. And if you throw bonuses or training at people who are driven by challenge or variety or accomplishment or praise or team commitment, you're wasting time and money. That's not what they care about, so it won't help their burnout. One size won't fit all. It never does.

You know what drives many of your people. If you don't know, ask their former managers and team leaders. Or ask the employees themselves. Just don't assume the things that motivate you also motivate them. And don't decide they should be motivated by those same things.

Figure out what each of your people needs, starting with the ones showing the clearest signs of burnout. Then start looking for ways to tweak their jobs so they're getting more of what they really care about.

Yeah, that's a lot of fine-tuning. And it's a lot more touchy-feely than many IT people — in the trenches and in management — are really comfortable with.

But if you want to turn your burnout around, give them what they need.

Then they can give you the performance you need. ■



FRANK HAYES. Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at [fhayes@computerworld.com](mailto:fhayes@computerworld.com).

### Security First

After government auditors demand beefed-up security, the financial institution installs a push-button electronic lock on its data center doors. "The next evening, when our courier came for the night pickup, the driver walked in as usual," says pilot fish on duty. "Did someone leave the door open?" fish asks. "No, it was closed and locked," says driver. "But when I see one of these locks newly installed, I just try the factory default combination. It generally works."

### But It Sure Looks Great

Just after older terminals replace legacy mainframe workstations in this college, one administrator installs one he doesn't need in his office. IT pilot fish knows the administrator's secretary who does all the laundry for him, but the administrator gets his laundry anyway. "About two years later, the call comes that the terminal is missing and needs to be replaced," says fish, who shrugs it off. "It has burned out from being in the shop state. He's never been logged onto the system."

**Forward into the Past**  
Customer tells this sales pitch that he can't use the vendor's Web site to order products. "Your help desk told me it's because we're running Mac OS X and the browser is incompatible with your site," customer says. Frustrated fish calls Web manager and is told the customer has the story right. "But there's a work-around that has been tested and does work," Web manager says. "Downgrade the customer's Macintosh system to Mac OS 9.5 and they'll work fine!"



**It's Not You, It's Us**  
When the vendor's Web manager and he leave, the customer calls the story right. "But there's a work-around that has been tested and does work," Web manager says. "Downgrade the customer's Macintosh system to Mac OS 9.5 and they'll work fine!"

### Home It Down

IT pilot fish and his boss are working late when they notice the lights on the dial-in server are blinking. Out of curiosity, they run a trace on the firewall and identify the traffic as coming from pornographic Web sites. "Only one person was logged in to the CEO," says fish. Suspecting it's CEO brings in his laptop and asks fish to "clean it up" so he can give it to his daughter. "Clean what we found in the browser history?" says fish. "Clean from these same sites,"

**Lights Out**  
As the IT guy for three large clients, pilot fish supports several traveling partners — including one who keeps calling about a low-battery warning on his laptop. Is the charger plugged in? fish asks the partner staring at yet another call. "Yes, it is," partner says. "And I really didn't notice that I don't know how to operate my laptop." Pilot fish replies in the voice you played it into me with a smile on the door? he asks partner. The response: Cliché.



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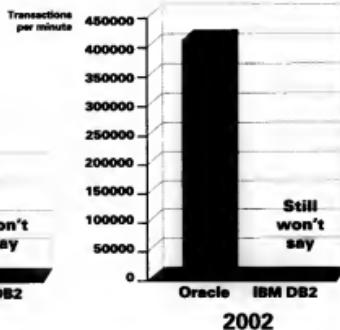
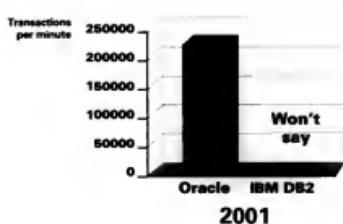
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